

INSTRUCTIONAL DESIGN PROCESS DYNAMICS OF pdMOOCs

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ABSTRACT

INSTRUCTIONAL DESIGN PROCESS DYNAMICS OF PDMOOCs

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This study explores the dynamics of the Instructional Design (ID) process for 100 Massive Open Online Courses created for professional development (pdMOOCs). By closely observing the Bilgeİş Project, a European Union project, the researcher has analyzed all e-mails, courses, and project documents in the project process and conducted interviews with project practitioners. Therefore, the suggestions for an effective and efficient ID process of pdMOOCs emerged in the study. Since the main interest is in the ID process rather than the outcomes of this pdMOOC ID project, a qualitative research method is used. To specify, In Vivo Naturalistic Case for a new theory approach, as a type of formative research, was the best fit for the study in this qualitative framework. So, the research process encompassed analysis, design, development, and initial evaluation of the pdMOOCs. Due to the nature of formative research, determining the strengths and weaknesses provided a detailed reflection of the ID process. In this manner, this study's results can contribute to how a more effective and efficient ID process of pdMOOCs should be. The study results can be applied in MOOC and online course applications since they include useful, valid, and reliable improvements for future applications and research studies.

Keywords: MOOC, pdMOOC, Instructional Design Process, Instructional Design, Formative Research

ÖZ

PDMOOC'LARIN ÖĞRETİM TASARIMI SÜRECİ DİNAMİKLERİ

Eşfer, Sezin

Doktora, Bilgisayar ve Öğretim Teknolojileri Eğitimi Bölümü

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Bu çalışmada, Bilgeİş projesi kapsamında profesyonel gelişime yönelik hazırlanan 100 kitlesel açık çevrim içi dersin (pdMOOCs) öğretim tasarımı süreci dinamikleri incelenmektedir. Araştırmacı, bir Avrupa Birliği projesi olan Bilgeİş Projesini gözlemleyerek, 100 pdMOOC'un öğretim tasarım sürecini yakından incelemiş; proje sürecindeki tüm e posta, ders ve proje dokümanlarını analiz etmiş ve proje uygulayıcıları ile görüşmeler yapmıştır. Böylece, pdMOOC'lar için daha etkili ve verimli bir öğretim tasarımı sürecinin nasıl kurgulanabileceğine dair önerilere ulaşmıştır. Çalışmanın odağı öğretim tasarımı sürecinin (analiz, tasarım, geliştirme v.b) sonuçlarından ziyade, sürecin kendisinde olduğu için; araştırma yöntemi olarak biçimlendirici araştırma yöntemi tercih edilmiştir. Biçimlendirici araştırmanın doğası gereği, süreçte incelenen durumun güçlü ve zayıf yönlerinin belirlenmesi öğretim tasarımı sürecinin ayrıntılı bir yansımasını sağlamıştır. Çalışma sonuçları hem her türlü uzaktan eğitim uygulaması için, hem de MOOC'lar için yararlı, geçerli ve güvenilir iyileştirme önerileri sunmaktadır.

Anahtar Kelimeler: KAÇD, pdMOOC, Öğretim Tasarımı Süreci, Öğretim Tasarımı, Biçimlendirici araştırma



Ekin Bilge'ye...

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TABLE OF CONTENTS

ABSTRACT	v
ÖZ.....	vi
ACKNOWLEDGMENTS.....	viii
TABLE OF CONTENTS	ix
LIST OF TABLES	xiii
LIST OF FIGURES.....	xvi
LIST OF ABBREVIATIONS	xvii
CHAPTERS	
1.INTRODUCTION.....	1
1.1 Paradigm Change in Education	1
1.2 Background of the Study	4
1.2.1 MOOCs come to the stage	4
1.2.2 The skills gap phenomenon.....	7
1.2.3 The need for informal learning.....	8
1.2.4 MOOCs as a solution for professional development	10
1.2.5 pdMOOCs come to the stage	11
1.3 Problem.....	12
1.4 Purpose of the study	18
1.5 Research Questions.....	18
1.6 Significance of the study	19
1.7 Definitions of Terms.....	21
1.8 Summary of the chapter.....	23

2. LITERATURE REVIEW	25
2.1 Types of MOOCs	25
2.2 Advantages and contributions of MOOCs	30
2.3 Limitations and challenges of MOOCs	32
2.4 pdMOOCs	39
2.4.1 Analysis Phase Findings	40
2.4.2 The highlights of pdMOOCs	49
2.4.3 The Instructional Approach of pdMOOCs	55
2.5 ID process of MOOCs	58
2.5.1 Suggestions for effective ID process and effective MOOCs	60
2.5.2 The necessity of MOOC ID process-related research studies	70
2.6 Summary of the chapter	71
3. METHODOLOGY	73
3.1 Purpose of the Study	73
3.2 Research Questions	74
3.3 Research Design	74
3.3.1 Formative Research	74
3.3.2 Type of Formative Research	76
3.4 Research Context	80
3.4.1 The Case: 100 pdMOOC Project	80
3.4.2 Project Practitioners	90
3.4.3 The Project Process	92
3.5 Data Collection	95
3.5.1 Data Collection Methods	95
3.5.2 Qualitative Data Analysis	99

3.6	Validity and Reliability	102
3.6.1	General validity and reliability issues in the qualitative study.....	102
3.6.2	Validity and Reliability Issues in Formative Research	104
3.7	Assumptions	106
3.8	Researcher's Role	106
3.9	Summary of the Chapter.....	109
4.	RESULTS.....	111
4.1	The Framework of this Study	111
4.2	RQ1. What are the factors influencing the ID process of pdMOOCs? How?	113
4.2.1	Factors Affecting Positively	115
4.2.2	Factors Affecting Negatively	166
4.3	RQ2. What are the suggestions for an effective and efficient ID process of pdMOOCs?.....	240
4.4	Summary of the chapter.....	277
5.	DISCUSSION AND CONCLUSION	283
5.1	ID process of pdMOOCs	283
5.2	Major findings	286
5.3	Implications of the findings	313
5.4	Practical suggestions for practitioners	320
5.5.	The Limitations of the study.....	329
5.6.	Recommendations for future research	332
	REFERENCES.....	335
	APPENDICES	
	Appendix A. Timetable of the Project	355

Appendix B. Approval of the METU Human Subjects Ethics Committee	357
Appendix C. Consent Form	359
Appendix D. Debriefing Form.....	361
Appendix E. Interview Questions.....	363
Appendix F. Translations.....	365
CURRICULUM VITAE.....	397



LIST OF TABLES

TABLES

Table 1.1. Types of open learning (Based on de Langen & van den Bosch, 2013 as cited by Witthaus et al., 2016, p. 10).	4
Table 1.2. Turkish MOOC Portals (Cagiltay, Celik & Esfer, 2020).....	7
Table 1.3 Formal vs. Informal Learning (Jokisalo & Riu, 2009, p.2).....	9
Table 1.4 Summary of the chapter	24
Table 2.1 Some cultural themes about MOOCs (adapted from Table 3, Liu et al., 2010 as cited in Chen, 2013, p.9.).....	37
Table 2.2 SWOT Analysis Table of Bilgeİş Project (Cagiltay& Esfer, 2018, p.173) ...	42
Table 2.3 Representation of Best practices Analysis Procedure (Cagiltay& Esfer, 2016)	44
Table 2.4 Some common and unique features of MOOC portals (Adapted from Cagiltay & Esfer's study, 2016, p.140-143)	45
Table.2.5 pdMOOC Topics and Categories (Esfer & Cagiltay 2018).....	47
Table 2.6 Guidelines for e-learning designed to teach job tasks (Clark &Mayer, 2011, p.406-407)	64
Table 2.7 The nine principles of Universal Design for Instruction (Scott, McGuire, & Shaw, 2003, p. 375-376)	69
Table 3.1 Kinds of Formative Research Studies (Reigeluth & Frick, 1999, p.638)	76
Table 3.2 100pdMOOC Project	87
Table 3.3 Roles and missions on Bilgeİş Project Practitioners.....	92
Table 3.4 Timetable for the Bilgeİş Project	92
Table 3.5 Demographic information of interviewers	97
Table 3.6 The summary of the qualitative data analysis	100
Table 3.7 The summary of the methodological framework of the study	110
Table 4.1 The framework of the study	112
Table 4.2 All Factors	114

Table 4.3 Positive factors	115
Table 4.4 Positive factors of Analysis Studies	117
Table 4.5 Standard and decisions as facilitators	125
Table 4.6 Positive factors of Raw Content Preparation.....	128
Table 4.7 Positive factors of Storyboarding	135
Table 4.8 Positive factors of Production and Initial Testing	149
Table 4.9 Revision Management	154
Table 4.10 Positive factors of Organizational Issues.....	155
Table 4.11 Problems & Actions (Final Report).....	157
Table 4.12 Comparison of course production processes	158
Table 4.13 Negative Factors	166
Table 4.14 Negative Factors of Analysis Phase	169
Table 4.15 Negative Factors of Raw Content Preparation	177
Table 4.16 Negative Factors of Storyboarding.....	188
Table 4.17 A timetable of course production	199
Table 4.18 Negative factors of production and initial testing	199
Table 4.19 Negative Factors	217
Table 4.20 Suggestions from Practitioners.....	241
Table 4.21 The Suggestions Regarding Analysis Phase.....	243
Table 4.22 Suggestions About Raw Content Preparation	249
Table 4. 23 Suggestions about Storyboarding	254
Table 4. 24 Suggestions About Production and Initial Testing	260
Table 4. 25 Suggestions About Organizational Issues	267
Table 4.26 Summary of the All Results.....	278
Table 5.1 ID Models affecting pdMOOCs ID Model.....	285
Table 5.2 Practical contributions and drawbacks of the analysis studies	291
Table 5.3 Pilot pdMOOCs' problems and lesson learned from their ID process.....	292
Table 5.4 Pros and cons of the raw content development process of pdMOOCs	295
Table 5.5 Enablers and disablers in storyboarding of pdMOOCs	297
Table 5.6 Desired instructional strategy and the difficulties	300
Table 5.7 Reformations and limitations on the production/testing process.....	304

Table 5.8 Improvements and problems on organizational issues.....	308
Table 5.9 The other organizational issues in the pdMOOC ID process.....	311



LIST OF FIGURES

FIGURES

Figure 2.1 SWOT Analysis for MOOCs in digital workplace learning (Egloffstein, 2018, Fig. 9.3, p.161).....	42
Figure 3.1. Reasons for learning demands and the background of the pdMOOCs (Adapted from the Figure 10.2 in Esfer & Cagiltay's (2018, p.169) study).....	84
Figure 3.2. All groups in the project of Bilgeİş Project.....	91
Figure 3.3. The representation of the pdMOOC project process.....	93
Figure 3.4. Representation of the ID process of pdMOOCs.....	94
Figure 3.5. Data analysis cycle of the study	99
Figure 3.6. Study Timeline	108
Figure 4.1. The ID Process of the Bilgeİş project (First Version).....	127
Figure 4.2. Screenshots from the pdMOOCs.....	139
Figure 4.3. A screenshot from the Leadership course storyboard	144
Figure 4.4. A screenshot from the Leadership course storyboard comments.....	145
Figure 4.5. How to read SB Document.....	146
Figure 4.6. A sample certificate from bilgeis.net	165
Figure 4.7. Scenario screenshot 1	252
Figure 4.8. Scenario screenshot 2	252
Figure 5.1. The factors affecting the effectiveness of the pdMOOC ID process	287
Figure 5.2. The representation of pdMOOC ID Process	315

LIST OF ABBREVIATIONS

ABBREVIATIONS

MOOC: Massive Open Online Course

pdMOOC: Massive Open Online Course for Professional Development

WCAG: Web Content Accessibility Guidelines

EU: European Union

SME: Subject Matter Expert

DT: Developers Team

ID: Instructional Design

PMT: Project Management Team

CT: Coordination Team

APS: Auditors and Project Specialists

QAT: Quality Assurance Team

SWT: Storyboard Writer Team

OER: Open Educational Resources

OCW: Open Course Ware

CHAPTER 1

INTRODUCTION

Chapter I covers the basic framework of the study. Why this study is necessary and how it can contribute to the related research community issues are highlighted by presenting the background, problem, purpose, research questions, the significance of the study, definition of terms, and abbreviations in this chapter. Firstly, the topic of paradigm change in education is examined in Section 1.1, introducing the general developments that underpin the emergence of Massive Open Online Course (MOOC) and MOOCs for professional development (pdMOOC) concepts. Then, secondly, the details about these core concepts of this study and some MOOC Portal examples in Turkey and abroad are presented in the background of the study part (Section 1.2). Motivations, reasons, and focus areas of the current study and relatively which problem is the case of this research study are provided in Section 1.3. Next, Section 1.4 and 1.5 present the purpose and research questions to solve the stated problem. In that regard, why this research study is needed and important in the significance of the study (Section 1.5) is discussed. Lastly, all important terms and abbreviations are explained to be on the same page during the whole chapters of the thesis (Section 1.6), and Section 1.7 includes a summary table for this chapter.

1.1 Paradigm Change in Education

There is a radical paradigm change in the education world that led to the emergence of different practices. The majority of society has been expected this "technology-enabled change in education" for nearly two decades (Gerber, 2014). Social, economic, and cultural developments have formed the roots of this change. Following factors, including needs and efforts to keep pace, can be regarded as the major ones:

- The rapid development of the Internet (Thomas & Brown, 2011; Ertmer & Newby 2013; Kinshuk, Huang, Sampson & Chen, 2013)
- The rapid development of Information and Communication Technologies (ICT) (Casey, 2008; Hamburg & Hall, 2008)
- Growing up of e-learning environments (Sugrue & Rivera, 2005)
- The birth of open and online learning environments (Bonvillian & Singer, 2013; Brown & Green, 2014; Patru & Balaji, 2016; Tømte, Fevolden & Aanstad, 2017)
- The coming of the open course materials, open educational practices, Open Educational Resources (OER), Open Course Ware (OCW), open access, open knowledge terms (Patru & Balaji, 2016; Tømte et al., 2017)
- The need for informal learning (De Vries & Brall, 2008; Hamburg & Hall, 2008), and the importance of informal learning for digital technology in workplace learning (Egloffstein, 2018).
- The high possibility of MOOCs can fill the gap between formal and informal learning (Egloffstein, 2018).
- Lifelong learning a growing need in societies (Thomas & Brown 2011; Abuzyarova et al., 2019).
- The increasement of the need for lifelong learning as working people should gain take new skills to adapt to technological changes (Mathes, 2019).
- Supporting learner-centered approaches (Thomas & Brown, 2011; Ertmer & Newby, 2013; *Bali, 2014*).
- The increasing importance of self-regulated learning concept in workplace settings (Egloffstein, 2018).
- The effects of digital technology on workplace and workplace learning (Santandreu Calonge, Aman Shah, Riggs & Connor, 2019).
- The popularity of using mobile devices (Brown & Green, 2014; de Waard et al., 2014)
- The popularity of social media and pedagogical formats (de Waard et al., 2014).
- The general global challenges due to 21. Century requirements (Sablina et al., 2018; Zawacki-Richter et al., 2018).

Comparing to the past, the learning needs change rapidly while they want to meet these needs immediately and without compromising educational quality. As Brown and Green (2014) explained, online learning continues to gain in popularity in Instructional Technology (IT) field. In the same vein, learning and teaching phenomena are affected by the use of mobile technologies and pedagogical formats (de Waard et al., 2014). Notably, it is possible to claim that the coming of the open course materials, open educational practices, open educational resources, open access, open knowledge terms affected the learning in the axis of openness (Patru & Balaji, 2016; Bozkurt, Keskin & De Waard, 2016). Higher education institutions (HEIs) like UK Open University have created online courses for nearly 30 years (Tømte et al., 2017) through the development of ICT (Casey, 2008). Open Course Ware (OCW) and Open Educational Resources (OER) have prepared a base for MOOCs (Tømte et al., 2017). Therefore, as a new form and implementation of the openness movement, MOOCs emerged in the open and online learning field in 2008.

Before examining the MOOC in detail, it can be helpful to clarify the open learning types like open education, open universities, OERs, and MOOCs, which are frequently interchangeably used in daily life. Hence, one can easily understand whether an online learning environment or material is MOOC or not. Basically, MOOCs can be identified as online courses that are open and free to everybody at any time if learners have Internet access and voluntary (Liyanagunawardena, Williams & Adams, 2013; Jordan, 2014; Mulder & Jansen, 2015; Veletsianos, Collier & Schneider, 2015), while OERs are just course materials and open education is a broader term embracing open programs and courses as in open *universities* (Witthaus et al., 2016). In order to summarize, *Table 1.1* explains the differences between these three terms since they differ in terms of openness, main object, degree, certification, and target group.

Table 1.1. *Types of open learning* (Based on de Langen & van den Bosch, 2013 as cited by Witthaus et al., 2016, p. 10).

	Open education, open universities	MOOCs	OERs
Definition of open	No start qualifications	No course fees	Free to (re)use and (re) distribute
Certificates	yes	yes	no
Degrees	yes	no	no
Target group	students, learners	learners	learners and educators
Main objects	programmes	courses	learning

1.2 Background of the Study

As a backbone of this study, MOOCs and examples are presented in this part. Also, since the reflections of the mentioned educational paradigm change and the dynamics behind the pdMOOC idea have a similar base, the study background embracing them is examined in five sections: *1. MOOCs come to the stage, 2. The skills gap phenomenon, 3. The need for informal learning, 4. MOOCs as a solution for professional development, and lastly, 5. pdMOOCs come to the stage!* As seen, these sections can be regarded as the roots that led to the transformation of MOOCs to pdMOOCs, importance, and instructional design of pdMOOCs.

1.2.1 MOOCs come to the stage

MOOC is a very popular phenomenon (Liyanagunawardena, Williams & Adams, 2013; Bonvillian & Singer, 2013) still in the 2020s. They have become significant components of perceived innovation for online learning environments (Guàrdia, and Maina, & Sangrà, 2013). Now, they can be seen as a new understanding of instruction and learning (Guàrdia, and Maina, & Sangrà, 2013). In other words, Kay, Reimann, Diebold, and Kummerfeld (2013) state that "MOOCs have exploded onto the scene, promising to satisfy a worldwide thirst for a high-quality, personalized, and free education" (p.70). From the historical perspective, in the 19th century, distance education came to the stage

of education and Open University 1970. In 2001, Open courseware term, which holds OERs, and in 2008, MOOCs become current issues of distance education (Patru & Balaji, 2016). The first MOOCs emerged from the OER movement. In the blog discussions of *Connectivism and Connective Knowledge* (CCK08) course given by two professors at the University of Manitoba, the first usage of "MOOC term" can be seen in July 2008 (Downes, 2008; Young, 2013; Gerber, 2014; Tømte et al., 2017). In these years, Open University academics predicted that this type, of course, has the possibility of being a model for Open Education if the majority of research studies give satisfactory results (Weller, 2015). So, a few years later, Daniel (2012) define MOOCs as an "educational buzzword" and The New York Times declared "the year of the MOOC" for 2012 as Pappano (2012) stated. In 2018, there are 11.400 MOOCs and 101 million learners in the World (Shah, 2019).

MOOCs typically operate a combination and integration of videos, quizzes, resources, articles, and discussions, etc., for an unlimited learning community (Ho et al., 2015). They can be defined as web-based courses that are free of charge for everybody from anywhere in the world (Cormier & Siemens, 2010; Kop & Carroll, 2011). In order to maintain learners' engagement and motivation, they deliver the content of courses with several instructional elements. MOOCs can be conceptualized as online learning environments encouraging people to use and share OERs (Kop & Carroll, 2011). Some other unique features about MOOCs: no entry requirements like *age*, location, or previous formal education, accessibility at no charge (Patru & Balaji, 2016). Of course, these unconditional ties and freedom of access can be variable based on the interpretation of the subterms and sub-elements, the definition of a MOOC. Accordingly, MOOCs may be differentiated based on four general categories like their size, cost, accessibility of the courses, and online delivery (Bali, 2014). They have several various characteristics based on the differences among their structures. These different MOOC types are explained in *Chapter 2* in detail.

When the MOOCs in the world are examined, MOOC portal examples like EdX, Coursera, Udacity, P2Pu, Udemy, FutureLearn, Alison, etc., are seen to be popular (Liyanagunawardena, Williams & Adams, 2013; Taneja & Goel, 2014). In 2012, EdX

was founded by the partnership between MIT and Harvard University, and it is a non-profit organization while Coursera is a for-profit organization. With the birth of many other USA based MOOC platforms such as Udacity, Iversity, MiriadaX, and Udemy, etc., the trend started in America spread to the world. Future Learn (UK), FUN (France), eWant (Taiwan), Edraak (Saudi Arabia), Prometheus (Ukraine), Iversity, and OpenHPI (Germany) came up in these years. Also, after about five years, many other national MOOC portals emerged, like SWAYAM (India) and ThaiMOOC (Thailand).

Although it is not still clear the way of change (Veletsianos & Shepherdson, 2016), MOOCs may transform higher education (Schuwer et al., 2015; Tømte et al., 2017). As indicated in Allen and Seaman's (2014) study, only a few institutions have experienced creating MOOCs, although the higher education institutions' MOOC portal percentages have increased in recent years. According to the US survey results, almost half of the institutions state that they are still undecided about creating MOOCs, and 33% of institutions report that they have no plan for a MOOC platform (Allen & Seaman, 2014). On the other hand, as always, developing countries encounter difficulties both in identifying the educational problems and handling them, and at this point, MOOCs and online learning environments can be considered suitable solutions for, especially local problems (Czemieciewicz, Deacon, Small & Walji, 2014). However, there are still lots of unknown aspects of their practical impact and how they penetrate society's life. Investigating this gap is also crucial for Turkey as a developing country. In this respect, increasing the number and educational quality of MOOCs might be one of the solutions.

When it comes to Turkey, there were different attempts related to OERs and OCWs (Kursun, 2011; Kursun, Cagiltay & Can, 2014), but it is hard to state an ongoing success in open learning environments depending on lack of awareness and support in the community (Bozkurt, 2019a). Now, there are a few widely used MOOC platforms in Turkey. When we examine in order, Akadema is the first MOOC platform created by Anadolu University, then Atademix founded by Ataturk University, and the third one is Bilgeleş by METU. Besides, while these ones have their MOOC platforms, Istanbul Technical University, Yeditepe University, and Boğaziçi University provide courses for

Universiteplus. More detailed information about Turkish MOOC portals is provided in *Table 1.2*.

Table 1.2. Turkish MOOC Portals (Cagiltay, Celik & Esfer, 2020)

Name	University	Total # of Courses	Course Categories	Course Access	Cost
AtademiX	Atatürk University atademix.atauni.edu.tr	12	Technical and Soft Skills	MOOCs are accessible on specific dates	Totally Free of Charge
Akadema	Anadolu University ekampus.anadolu.edu.tr	56	Technical and Soft Skills	MOOCs are accessible on Specific dates	Totally free of charge
Bilgeİş	Middle East Technical University bilgeis.net	110	Technical and Soft Skills	Self-paced	Totally free of charge
İstanbul İşletme Enstitüsü*	Not supported by a university www.iienstitu.com	61	Technical and Soft Skills	MOOCs are accessible on specific dates	Free in digital format, but requires payment for the printed verified certificate
Coursera (Note: Turkey originated MOOCs in Turkish)	Koç University www.coursera.org/koc	6	Technical and Soft Skills	MOOCs are accessible on specific dates	Free, but requires payment for verified certificates
Edx (Note: Turkey originated MOOCs in Turkish)	Not supported by a university, but sponsored by Turkcell Akademi https://www.edx.org/course?search_query=turkish	3	Soft skills	Self-paced (MOOCs are archived)	Free, but requires payment for verified certificates

* Also includes other paid courses in addition to free ones

1.2.2 The skills gap phenomenon

In the education world, while the MOOC phenomenon is coming up, the gap between university degrees, graduates, education systems, and industry needs is growing (Patru & Balaji, 2016). Specifically, the gap about soft skills for different employee and employer positions of companies becomes clear as DeakinCo's reports (Deloitte, 2017). On the other hand, it is a well-known fact that there is a considerable need for

transferrable skills in the rapidly changing world (Becker et al., 2017; Santandreu Calonge et al., 2019). Transferrable skills can be regarded as social, intercultural, and digital skills (Becker et al., 2017) like "problem-solving, entrepreneurship, and creative thinking" (p.8). Also, in 2019, the European commission's digital competence framework 2.0 (DCF 2.0) identifies digital competencies in five areas, as cited by Romero-Rodríguez et al.'s study (2020): Information and Data Literacy, Communication and Collaboration, Digital Content Creation, Safety and Problem Solving. In order to adapt to this kind of new job demands and technologies, there should be continuous self-improvement for working people (Small et al., 2019). As Hamburg and Hall (2008) state, the small and medium-sized companies experience difficulty in becoming adapted in their proficiencies and sustainability. Web 2.0 is corresponding with the basis of communities of practice, providing participation by ensuring informal learning. Hamburg and Hall (2008) declared that employees in the small and medium-sized companies could learn from each other and interact with the workmates, so improve themselves in terms of acquiring the ability to solve the problems once they face in the work environment. Therefore, the community of practice can also be a significant way for new skills.

1.2.3 The need for informal learning

De Vries and Brall (2008) state that most of the employees and employers face several and changeable learning needs that should be met rapidly. Generally, these kinds of needs may be neglected or deal with formal training. Also, traditional training cannot be sufficient and efficient to meet all the demands related to "twenty-first-century competencies" demands (Egloffstein, 2018). As a matter of fact, generally, employees are not to be allowed to take a course during their working hours (Condé & Cisel, 2019), and some employees and employers do not believe that they can improve their capacities and job skills (Hirschi, 2018; Small et al. 2019). However, De Vries and Brall (2008) argue that providing informal learning to companies is an important opportunity since the natural and flexible form of this learning can support more employees or employers. Informal learning can be regarded as work-related daily activities' results (Witthaus et al., 2016). Werguin (2010) and Witthaus et al. (2016) state that informal

learning occurs without intention, and learning is not structured by disciplines, and fields learning is not planned. The council of the European Union (2012) highlighted the value of validation of non-formal learning and informal learning environments to promote employability, mobility and supporting socio-economically disadvantaged people. According to the Cedefop glossary (2000) and the Communication of Lifelong Learning (European Commission, 2001), *Table 1.3* presents the main differences between formal and informal learning (European Commission, 2001; Colardyn & Bjornavold, 2004; Jokisalo & Riu, 2009).

Table 1.3 *Formal vs. Informal Learning (Jokisalo & Riu, 2009, p.2)*

Formal Learning	Informal Learning
Typically provided by an education or training institution	Resulting from daily life activities related to family, work, or leisure
Structured in terms of learning objectives, learning time or learning support.	Not structured (flexible) in terms of learning objectives, learning time or learning support)
Leads to certification	Typically, does not lead to certification
Intentional	May be intentional, but in most cases is not intentional (incidental, random)

While many unemployed people are trying to close the gap between expected job skills and formal education skills (Patru & Balaji, 2016), MOOCs generally offer an informal learning environment, unlike professional training in companies (Condé & Cisel, 2019), and they are not likely the traditional or academic courses. They tend to support more personalized learning experiences (Egloffstein, 2018). Especially, small and medium-sized companies workers prefer MOOCs because they promote informal learning that enables them to simplify the tasks in the work environment and to learn in groups in a natural way (Hamburg & Hall, 2008). The opportunity for using digital technologies in workplace learning provides informal and lifelong learning (Egloffstein & Ifenthaler, 2017). De Vries and Brall (2008) also claim that providing informal learning to companies is an important opportunity since the natural and flexible form of this learning can support more employees or employers. Santandreu Calonge et al. (2019, p. 19) review Blackwood's (2016) study and reproduce some key findings of it:

"Employers are looking for "work-ready" graduates who can apply their academic studies and abilities in a commercial or work context. The industry is changing at a rapid rate. This presents a dilemma for universities and colleges if they try to keep up with industry demands. Graduates need to upskill and adapt to a changing jobs market. Their degree will only get them in so far in a career that may span 50 years."

1.2.4 MOOCs as a solution for professional development

In connection with the arguments of the above-mentioned, "earning = learning" (p.3) approach gained importance and the formula "a highly educated workforce + basic research + commercial support = innovative products + new companies + jobs + prosperity" emerged (Coates, 2013, p.3). So, many studies suggest that MOOCs can be an effective tool to increase the workforce. (Santandreu Calonge et al., 2019). For example, HarvardX and MITx data also focused on using MOOCs regarding the improvement of learners' professional development (Ho et al., 2014), and most people believe MOOCs create crucial change in these processes (Gerber, 2014).

MOOCs can help learners in terms of their learning needs, which should be immediately met for their job in the 21st century's "fast-changing workforce" (Santandreu Calonge et al., 2019). Since the production task cannot be stopped in factories or firms, the employees have no time for on the job training and very limited time and opportunity to learn new technology. These difficulties are serious obstacles to becoming successful in the job setting. In this regard, the construction of vocational MOOCs seems to be a solution (Zhang et al., 2019). Furthermore, MOOCs are popular in the professional learning and development field (Egloffstein & Schwerer, 2019) and matter for digital workplace learning (Egloffstein & Ifenthaler, 2017; Egloffstein et al., 2019). Especially, bMOOCs (blended MOOCs) and SPOCSs (small private online courses) are fitted with a digital workplace learning context (Egloffstein, 2018). However, the potential of MOOCs for workplace learning has not yet been searched in depth (Egglofstein & Ifenthaler, 2017). Milligan and Littlejohn (2014) state that there is little evidence to detect the effectiveness of MOOCs as a professional learning environment. Actually, students in universities and employees in business have similar motivations to participate in a MOOC (Berland et al., 2014). On the other side, in the instructional design field, looking for a new understanding of knowledge production and learning challenges are still the core issues (Patru & Balaji, 2016). That is why developing countries are integrating MOOCs in their national and professional educational activities (Patru & Balaji, 2016), and most of the

higher education institutions try to adopt MOOCs (Gerber, 2014). They are not only instructional instruments but also initiatives for enhancing the circulation of knowledge in society (Patru & Balaji, 2016). As the lifelong learning platform (2016, p.2) declared, "tackling inequalities in education should be a part of the comprehensive fight for social justice, in order to make universal values alive particularly among young people".

1.2.5 pdMOOCs come to the stage

The skills gap phenomenon, the need for informal learning, job-related skills, and informal learning point that MOOCs as a solution for professional development. As digital technologies mean the availability of resources, flexibility, self-paced learning environments, controlling their learning for employees (Santandreu Calonge et al., 2019), using learning strategies in MOOCs also contributes to professional development (Moraes & Borges-Andrade, 2015; Haemer & Borges-Andrade, 2018). Also, there is a lack of development of noncommercial and sustainable business models (Daniel, 2012) for a long time. At this point and with these demands, MOOCs for professional development (pdMOOCs) was designed and developed through an EU Project (Technical Assistance for Capacity Development of Employees and Employers via Information and Communication Technologies -ICT) in Turkey, which is called s Bilgeİş. It proposes to build up an online learning platform to be free, accessible, and user-friendly designed with advanced tools, which will support the adaptability of employees and employers to these new social and economic structures and to increase the adaptability of employees and employers by investing more in human capital via ICT services and tools in Turkey. So, the researcher wants to observe the whole Instructional Design (ID) process, follow tasks, people, events, risks, problems, solutions, etc., examine the procedures, documents, improvements, etc. related to this project, since these will help to the researcher while exploring the dynamics of the ID process in a MOOC environment.

Within the scope of the *Bilgeİş Project*, a pdMOOC platform for employees and employers was developed, and by investigating the factors affecting the process -from the beginning to the end-, it will be possible to highlight the instructional design

principles for such a setting. The product designed for the project helps the target group for their professional development via ICT courses. Therefore, the main aim of the Bilgeİş Project is developing infrastructure for 100 MOOCs, where anyone can follow the interactive training to teach mainly ICT related subjects to increase their capacity in their work. In other words, the motivation of the project is to increase the adaptability of employees and employers by investing more in human capital via ICT.

1.3 Problem

The researched literature can shed light on the thesis problem by presenting the relevant issues, historical perspectives, and current information. There is a gap between MOOC usage, pedagogy, quality issues, and the ID process. In addition, there is limited research study regarding practical implementations and instructional designers' perspectives on MOOC literature. So, the study's problems can be examined in the following dimensions, which are related to instructional design process dynamics: a. Instructional designers' perspective on MOOC studies, b. MOOC problems and the ID Process, c. Pedagogical debate on MOOCs, d. MOOCs' quality, and e. Practical implementations and research studies are not effectively informed by each other.

a. Instructional designers' perspective on MOOC studies: Firstly, there are many research studies about MOOCs which examine several issues from the learner perspective like learners' motivation (Douglas et al., 2020; Semenova, 2020; Solórzano-García et al., 2020); satisfaction (Halawa et al., 2014; Hew, Hu, Qiao, & Tang, 2020); learning analytics (Ho et al., 2015; Alexandron et al., 2019; Khalil & Ebner, 2016). completion (Moore & Wang, 2020; Semenova, 2020), drop out rates (Schlögl et al., 2019; Chen et al., 2020; Zaqoot & Oh, 2020), etc. Likewise, research studies on MOOC instructors' motivation and satisfaction are frequently encountered in the literature (e.g., Sari, Bonk & Zhu, 2020; Doo, Zhu, Bonk, & Tang, 2020). Also, it is possible to classify hundreds of MOOC studies from students' perspective (Kopp, 2011; Jacobs, 2013; Breslow et al. 2013; Veletsianos 2013) and instructor roles and perspective (Head, 2013; Liyanagunawardena et al. 2013; Ross et al. 2014; Veletsianos and Shepherdson 2016; Watson et al. 2016a, Doo et al., 2020). However, instructional designers' perspective

seems to be underestimated even they create MOOCs, deal with several challenges, and solve the problems before a course turns into a MOOC in the current literature findings. Furthermore, instructional designers are active elements of designing a predictive analytical solution in MOOCs, and their involvement in the ID process is critical in terms of working towards learning needs (Er et al., 2019). Therefore, there is a need for more MOOC research, which deals with MOOC instructors, MOOC instructional design and development experiences, instructor pedagogical practices, and instructional designers (Zhu, Sari & Lee, 2020). If more details are known about the difficulties met by instructional designers in practice and the strategies to handle them, then it can be possible to improve the training/practices (Yanchar et al., 2010; Williams et al., 2011).

Zhu, Sari, and Lee's (2020) study investigate MOOC topics and trends of empirical MOOC research by reviewing 541 research studies for the last ten years, and they found that the research topics are primarily about the learners. According to their findings, the other popular topics are design-focused, context and impact-focused, and instructor-focused. Similarly, Bonk et al.'s (2018) study indicates that several MOOC studies are design-focused, context, and impact-focused research.

b.MOOC problems and the ID process: Secondly, the ID of a MOOC has unique challenges (Watson et al., 2016) such as cost, increasing learner number, drop-out, instructional quality, certification, and legal issues about MOOCs (Schlögl et al., 2019). Especially when it is considered how to engage massive numbers of diverse learners (Adair et al., 2014; Watson et al., 2016), there can be several problems in the MOOC ID process. Besides, there is limited study regarding the ID of MOOCs (Margaryan et al., 2015). Although many MOOC-related discussions and critiques, including MOOC quality, the effectiveness of MOOCs, pedagogical approach, drop-out rates, completion, motivation, etc., are strictly related to instructional design. Moreover, many problems and solutions related to MOOCs may arise from the details of the ID process itself, and it is also challenging to come across details about what happened in that process. For instance, MOOCs provide learning activities in a new environment; educators or designers are aware of high drop-out rates. Halawa, Greene, Mitchell (2014) explain the general tendency: firstly, learners register for a course with the high

motivation of retaining for the other courses. Then, they drop out of the courses due to several factors such as "attrition or lack of satisfaction." These factors may discourage them or drop out (Halawa, Greene & Mitchell, 2014; Ho et al., 2015). It is possible to say that learners in MOOCs are different from other learners because of the nature of the MOOCs (Liyanagunawardena, Parslow & Williams, 2014). Therefore, if desired that MOOCs to create a learning environment in which learners will not drop out easily and complete the courses they enrolled in, it is suggested that to be careful and meticulous in applying the pedagogy (Liyanagunawardena, Kennedy, & Cuffe, 2015).

If educational interventions focus on and deal with the risk factors in the design phase, it can be contributed to decreasing drop-out rates (Halawa, Greene & Mitchell, 2014). That is why the ID process has considerable importance on any kind of output of the MOOC. On another side, as it is possible to encounter lots of studies focusing on challenges of teaching in a MOOC (Hew & Cheung, 2014) or challenges of learning in a MOOC (Young, 2013; Hew & Cheung, 2014; Schlögl et al., 2019), unfortunately, it is difficult to find instructional design challenges of a MOOC. On the other side, up to 5 years ago, there were many studies claim that there is a lack of ID process perspective in MOOC design (Margaryan et al., 2015; Watson et al., 2016), or the studies showing that many MOOCs are designed without any consultation or experienced designers (Brouns et al., 2014). Moreover, in Margaryan et al.'s (2015) study, it is stated that the majority of the examined MOOCs have no even basic ID principles. Therefore, there is a need more research on the instructional design process, and perceptions are improving the understanding of the MOOC phenomenon in-depth (Zhu, M., Sari, A.R. & Lee, 2020).

c.Pedagogical debate on MOOCs: Thirdly, the questions in the Gerber's (2014) study continue to be answered still: Which instructional approaches could improve the learning experience? Is there a possibility of an effective and sustainable educational model for developing countries? Guàrdia et al. (2013) criticize lacking pedagogical debate, and they suggest a learner-centered instructional design. Also, they highlight the importance of a detailed guide about instructional elements (Guàrdia et al., 2013). Moreover, even though learner-centered MOOCs are attempted to be developed, how is it possible to produce more effective MOOCs without knowing the ID process dynamics? Besides,

"the pedagogy or the question of how we can effectively teach thousands of students was mainly addressed using technology, and MOOCs became a prominent answer" (Gamage et al., 2018, p. 886).

MOOCs have several pedagogical models (Gerber, 2014). There has been a continual discussion related to MOOCs' educational value and significance from the beginning of their showing up time on the web (Conole, 2013). How MOOCs are designed and their learning design are crucial factors that foster learning (González & Morales, 2019). Generally, the MOOCs are designed based on behavioral, socio-cognitive, and situated learning approaches (González & Morales, 2019). Nevertheless, since MOOC participants have very different goals, backgrounds, motivations, this diversity creates significant obstacles regarding traditional pedagogies (Kizilcec, Piech, & Schneider, 2013). Though the importance of learner-centered approaches (Bali, 2014), it is hard to say there are many examinations related to active learning pedagogical perspectives in MOOCs (Sahasrabudhe & Majumdar, 2016). Though providing huge learner data creates excellent advantages for building accurate predictive models of learner motivation and success in MOOCs (Er et al., 2019); unfortunately, developed models can not be sufficient for enhancing the instruction processes in real-world contexts (Gardner & Brooks, 2018). Because the pedagogical context is underestimated in these kinds of studies (Gašević et al., 2016, as cited by Er et al., 2019), and the success of MOOCs directly related to the instructors (Doo et al., 2020) and designers.

d.MOOCs' quality: Fourthly, providing MOOC quality is an ongoing debate among the researchers (Zawacki-Richter et al., 2018; Egloffstein et al., 2019), which includes several online learning quality predictors and unknown/unpredictable issues for MOOCs. The quality of MOOCs is still an unresolved issue (Hew & Cheung, 2014). Because the researchers investigate quality assurance in e-learning issues for nearly twenty years, but some of them are not valid for MOOCs, and MOOCs conflict with some certain best practice examples in online learning (Miller, 2015). MOOCs aim to meet the instructional quality need (Kay, Reimann, Diebold & Kummerfeld, 2013), but still, there is a long way to go to provide effectiveness and quality (Anutariya & Thongsuntia, 2019). Although mostly "their instructional design quality is low"

(Margaryan, Bianco, and Littlejohn, 2015, p. 77), MOOCs still have the opportunities related to innovative instructional designs to be able to provide self-regulated learning environments (Zawacki-Richter, Bozkurt, Alturki, & Aldraiweesh, 2018). Also, according to Patri and Balaji's (2016) guide named "Making Sense of MOOCs: A Guide for Policy-Makers in Developing Countries".

- Creating a quality assurance framework is a critical component of a national MOOC strategy.
- Adopting some successful quality models to the MOOC production process can be helpful.
- Developing quality models for each component of a MOOC like pedagogy and assessment can be a facilitator.

Furthermore, the debate about MOOC quality is directly related to the ID process (Morrison et al., 2011; Zawacki-Richter, Bozkurt, Alturki, & Aldraiweesh, 2018). It is evident that there is a need for a research study that investigates the relationship between ID quality and ID process quality because it is still not clear (Egloffstein, Koegler & Ifenthaler, 2019), but since MOOC quality should not just be related to learners' views, the factors influencing the ID process may also affect the learners. That is why it is suggested that improving a support system for MOOC ID that can lead MOOC designers and developers in terms of suitable and feasible design methods (Anutariya & Thongsuntia, 2019). As stated in Schlögl et al.'s study (2019), instructional quality is a core concept for MOOCs, and it depends on several factors such as instructional model, pedagogical assumptions, instructional frameworks, and approaches (Egloffstein et al., 2019). However, there is still insufficient research on pedagogical aspects of MOOCs, their relationship to quality (Margaryan, Bianco, & Littlejohn, 2015), and MOOC effectiveness (Adair et al., 2014).

e.Practical implementations and research studies: Fifthly, it is possible to find suggestions and principles for a better ID process of MOOCs in the literature, but most of them do not reflect a real-life case, or it is not known whether these suggestions work or not. Those who want to start a MOOC project or want to design a MOOC cannot see

which way they can go more smoothly. So, it is challenging to obtain real-life experiences about how a MOOC is born. On the other hand, if only the inferences about online learning are tried to be integrated into MOOCs, some MOOC-specific points may be overlooked. What do people who do not experience and know the basis of MOOC production offer, and how much of these suggestions can be implemented? At this point, Jasnani (2013) highlights the need for a specific instructional design for MOOCs by stating MOOCs run on an LMS and a crowded learner community. There is a need for specific MOOC design principles which appeal to very diverse learners in terms of background, motivation, goal, etc. and enable flexibility, individualization, problem-solving strategies, and interaction (Guàrdia, Maina, and Sangrà, 2013) and can show how effective MOOCs should be designed in a workplace setting (Eggloffstein & Ifenthaler, 2017). Also, it is emphasized that MOOCs should be designed by considering the participatory culture's design principles (Jenkins, 2019).

In order to improve MOOCs, MOOC providers can create instructional design knowledge grounded on empirical studies, and in-depth examinations of instructional processes are needed (Eggloffstein, Koegler & Ifenthaler, 2019). Still, it is not clear which design principles should be used in order to increase the efficiency of MOOCs (Guàrdia et al., 2013; Mathes, 2019). Furthermore, MOOCs require a unique ID, which should be based on a more practical-oriented approach and well-established scientific theories to become more valuable (Kopp & Lackner, 2014). On the other side, unfortunately, still practical implementations and research studies are not effectively informed by each other in the IT field (Richey, 1997).

To conclude, these mentioned five dimensions lead to the root of the problem. To address these kinds of gaps and problems, it is suggested that future studies should focus design process with a more comprehensive perspective, including stakeholders such as instructional designers or administrators (Zhu, M., Sari, A.R. & Lee, 2020). So, if this kind of MOOC study can be done, it can provide a MOOC designers' perspective, which gives hints about the quality, cultural sensitivity, pedagogies, etc. (Zhu et al., 2020). Besides, in order to produce effective and qualified MOOCs, their ID process should be highlighted from several dimensions. There is a need for sound ID principles (Merrill,

2013; Egloffstein, 2018), dynamics, and models. Also, using ID models while creating MOOCs is more beneficial for instructors, instructional designers, and students (Rafiq et al., 2019). To answer the question of "*what should be done* for a better ID process for MOOCs?" can be an important attempt to eliminate many problems with MOOCs. Moreover, there is a huge need for innovative and appropriate approaches to teaching or learning in MOOCs (Patru & Balaji, 2016).

1.4 Purpose of the study

To consider these problems cumulatively and to fill the research gap in the literature, it is evident that there is a need for a research study about the MOOC ID process. In this respect, the study aims to present the dynamics of the pdMOOC development process. In other words, the purpose of the study is to explore the dynamics of the ID process of pdMOOCs. Exploring this process is important to provide instructional design principles for MOOC development projects. Therefore, as the ultimate goal, it will be a benefit to contribute to answering instructional designers' and instructors' common questions. The overarching question of this study is how effective, and efficient instructional design principles for MOOCs can be developed since it is almost a common problem for instructional designers.

By studying a real-life case, it will be possible to provide an intimate and more in-depth look at the instructional design (ID) process. Since the interest is in the design process rather than the outcomes, the qualitative research method is used for this study. Parallel to this basis, the nature of the research questions is compatible with the qualitative study. Bilgeleş pdMOOCs have been selected as the case of this study. Because it can be accounted for as a unique study since the focus is on more adults, employees /employers, and there is no directly related project in Turkey.

1.5 Research Questions

In this study, the following research questions are investigated to figure out the instructional design dynamics for the pdMOOC ID process.

RQ. 1. What are the factors influencing the ID process of pdMOOCs? How?

RQ. 2. What are the suggestions for an effective and efficient ID process of pdMOOCs?

1.6 Significance of the study

The findings of this study can be evaluated as a step in the search for solutions to the issues previously mentioned as the problems of the study. The study is significant since it can provide a practical ID process guide, including real-life ID project dynamics and instructional designers' perspectives to create pdMOOCs. So, the contributions of this study can be explained with the following dimensions: a. Providing a practical guide for creating pdMOOCs, b. highlighting the ID Process of pdMOOCs, c. providing instructors', developers', MOOC providers', policymakers, and instructional designers perspectives, d. providing real-life experiences with an EU project and e. contributing to creating more effective MOOCs.

a. Providing a practical guide for creating pdMOOCs: By examining the design, development, and initial evaluation phases of pdMOOCs, it is possible to provide an inner and more in-depth look at the ID process. Also, since this is a longitudinal study, it includes reliability studies in terms of the change of what people say or write over time. So, the changes, contradictions, and dilemmas are also presented evidently.

b. Highlighting the ID Process of pdMOOCs: The results of this research contributed to the implementation process of MOOC design. The determined barriers, obstacles, enablers, and facilitators, etc., can help to highlight the whole ID process. Also, some inferences and assumptions about learners (motivation, interaction, and satisfaction, etc.) can be defined. It is possible that the instructional approaches and strategies in the current study can be beneficial potentially for future instructors and instructional design personnel who intend to build a MOOC project or ID project. Also, it will be possible to meet the need to elaborate ID frameworks for MOOCs (Sergis, Sampson, & Pelliccione, 2017; as cited by Egloffstein, 2018).

c. Providing instructors', developers, MOOC providers', policymakers, and instructional designers' perspective: This study's results can provide valuable perspectives of instructional designers, content providers, technical assistance teams, learners, project coordinators, etc., as only a few research studies in the literature can focus on MOOC instructors/designers or the context (Zhu, M., Sari, A.R. & Lee, 2020). So, the study contributes to the existing body of MOOC research by examining in-depth instructional designers' motivation, participation, and intention, which is a less investigated area.

d. Providing real-life experiences with an EU project: The study presents real-life empirical evidence regarding which factors are likely to affect instructional designers, MOOC providers, project practitioners, policymakers, etc., opinions and experiences when creating MOOCs and MOOC portal. The study underlines the different implementation paths for a MOOC project by presenting the whole process of an EU project. For instance, the MOOC topic list and analysis findings can guide MOOC developers who are trying to create training for professional development. Therefore, all other results of this research, lessons learned, and project-related details contributed to the implementation process of creating MOOCs for instructional designers and instructors.

e. Contributing to creating more effective MOOCs: The results of this study expected to highlight the issue of "how effective and efficient MOOCs can be developed?". In order to create effective MOOCs, Anutariya and Thongsuntia (2019) suggest that improving a support system for MOOC ID that can lead MOOC designers and developers in terms of suitable and feasible design methods. Also, Conole (2015) suggests that effective MOOC ID is the solution for several challenges, such as dropout rate and cheating. So, sharing all dynamics of the ID process of pdMOOCs can also contribute to this support system. Since lots of details about the difficulties and enablers met by instructional designers in practice and the strategies to handle them, then it can be possible to improve the MOOC practices (Yanchar et al., 2010; Williams et al., 2011).

To sum up, the study contributed to the MOOC research community by revealing the ID insights of 100 pdMOOCs. From a universal perspective, the pdMOOC concept and its'

design details were provided as the strengths of the study to the literature. On the other hand, given the limitations, the results of the current study cannot generalize regarding how an instructor/institution can use stated ID strategies but also the outputs, and the process of the pdMOOC creation process might be useful to MOOCs that have similar characteristics with pdMOOCs. Besides, the factors identified may help to awareness of how effective pdMOOC design can be possible by dominating the dynamics of the process.

1.7 Definitions of Terms

Instructional Theory: "An instructional theory is "a theory that offers explicit guidance on how to better help people learn and develop." (Reigeluth, 1999, p. 5).

Informal Learning: Informal learning is defined as learning resulting from daily life activities related to family, work, or leisure. "It is often referred to as experiential learning and can, to a degree, be understood as accidental learning" (Tissot, 2004, p. 76). "Learning resulting from daily life activities related to work, family, or leisure. It is not structured (in terms of learning objectives, learning time or learning support) and typically does not lead to certification. Informal learning may be intentional, but, in most cases, it is non-intentional (or "incidental"/random)." (European Commission, 2011, p.32)

Lifelong learning: "The continuous development of skills and knowledge to enhance the quality of life and employment prospects" (CSEP, 2011 as cited by Laal, 2011, p. 472).

MOOC Platform: In order to run the MOOCs, a platform is needed. For pdMOOCs, the platform is bilgeis.net, where the courses are placed.

MOOC Provider: Institution, which publishes and offers MOOCs (Patru&Balaji, 2016).

Instructional Design (ID): One of the possible meaning of ID is the field of practice, and the second meaning is to a meticulous way of planning a proper training referred to

as the Instructional System Design (ISD) process. So, *ID* is about the improvement of the work results in an organizational setting (Rothwell & Kazanas, 2011).

Dynamic: moving and changing factor.

Motivation: *It is* a psychological process that supports students to insist on meeting learners' goals (Muilenburg & Berge, 2005).

SCORM: When creating an eLearning course with an authoring tool, the output is a Zip Folder. This folder is called a SCORM package, which is ready for uploading to an LMS or MOODLE.

Interactivity: "Interactivity of the content has a crucial role in making active participant learner, not mere listener. It is expected to offer different types of interactivity, from simple to advanced ones: a content with different paths offered that learners have to choose and click on to get a deeper explanation or more content, and easily get back, an interactive quiz, an e-book, or a playbook, an interactive article, an interactive infographic, where some parameters are chosen by a learner and content presents data or information according to a learners' choice" (Innovative method document of the Bilgeİş Project).

Formative assessment: At the end of each pdMOOC part, learners' progress should be assessed. There will be two components of formative assessment. First, the responses of learners to immediate questions are planted in audio-visual educational materials. These responses are recorded for assessment, and the material will proceed accordingly to the level of learners' understanding in order to help them reach the learning outcomes. Second, at the end of each part of the lessons' unit, learners are assessed via quizzes and competence demonstrations. Due to the results of the assessment, learners may or may not proceed to the next part (Innovative method document of the Bilgeİş Project).

Summative assessment: At the end of each pdMOOC, the level of learners' understanding and skills should be assessed. It depends on the methodology and instructional design of each course, as well as the topic itself, which would be the best

way to assess the acquired knowledge and skills at the end of the course. Most of the assessment tools provide automatic results to participants and to online tutors; however, it will not be possible in all cases. Sometimes, it will be necessary for the participants to perform tasks or assignments which could only be assessed by the online tutor. The assessment plan should be elaborated on in an introductory part of the course. Although it may be earlier to define the assessment methods, the following are certainly included in the assessment plans: Quizzes, Practical individual and group assignments, individual and group presentations, Participation of the participants in the online discussions, etc. (Innovative method document of the Bilgeİş Project).

Design principles are testable prescriptive statements on how to do something in order to achieve a goal (Gregor, 2006).

Human capital: The term was suggested by Theodore Schultz (Schultz, 1961), which is defined as the sum of workers' knowledge and skills that have economic value and increase productivity. Sometimes not only knowledge and skills, but natural abilities and experience are also seen as elements of human capital (Bontis, 1999). Gary Becker (Becker, 1994) made an important contribution: he focused on education and training (upgrading) as the key factors for increasing human capital" (Abuzyarova, Belousova, Krayushkina, Lonsheikova, Nikiforova, & Chichkanov, 2019, p. 108).

Complex Adaptive Systems: "Complex adaptive systems – systems that involve many components that adapt or learn as they interact – are at the heart of important contemporary problems" (Holland, 2006, p.1). The complex term refers to the inter-relationships, interactions, and interconnections of elements within a system and between a system and its environment.

1.8 Summary of the chapter

The first chapter of the study presents a literature review about the motivation, background, and focus areas of the study by introducing the main concepts of the thesis topic. The problems that led the researcher to conduct this study and how this study

contributes to the solutions and research area are explained. So, the purpose and research questions are also given in this chapter. *Table 1.4* shows these main issues and their details.

Table 1.4 Summary of the chapter

Main Issues	Details
Theoretical Background	MOOCs come to the stage The skills gap phenomenon The need for informal learning MOOCs as a solution for professional development pdMOOCs come to the stage
Problems	Lack of instructional designers' perspective on MOOC studies, MOOC problems and the ID process, Pedagogical debate on MOOCs, MOOCs' quality Practical implementations and research studies are not effectively informed by each other.
Significance	Providing a practical guide for creating pdMOOCs Highlighting the ID Process of pdMOOCs Providing instructors', developers, MOOC providers', policymakers, and instructional designers' perspective Contributing to creating more effective MOOCs
Purpose	to explore the dynamics ID process of pdMOOCs
Research Questions	R.Q.1. What are the factors influencing the ID process of pdMOOCs? How? R.Q.2. What are the suggestions for an effective and efficient ID process of pdMOOCs?

CHAPTER 2

LITERATURE REVIEW

This chapter includes relevant literature and the theoretical framework of the study. The researcher determined some main issues for the literature review in order to draw clear lines. Since the definition and examples of MOOC terms are presented in the first chapter, this chapter aims to present a deeper understanding of general MOOC issues and specifically pdMOOCs. There are different types of MOOCs in Section 2.1, advantages and contributions of MOOCs in Section 2.2, and limitations/challenges of MOOCs in Section 2.3. Then pdMOOCs are presented with the background and motivation of 100 pdMOOC creation project (Bilgeİş), analysis results, principles, features, limitations, the instructional approach in Section 2.4. Next, in Section 2.5, the ID Process of MOOCs, pdMOOCs, and suggestions for a better ID process of MOOCs are discussed.

2.1 Types of MOOCs

MOOCs emerged from the open education movement, and they have diversified over the years. When the literature was examined, a wide scale has been identified starting from the components in MOOC definition and containing many MOOC types designed for special purposes. They can differ based on several dimensions like their pedagogical approaches, purposes (Daniel, 2012; Gerber, 2014); course offering times (Mohamed & Hammond, 2018); learning characteristics (Littlejohn, Hood, Milligan, & Mustain, 2016; Conole, 2013 as cited by Blackmon & Major, 2017); massiveness and openness structures (Pilli & Admiraal, 2016), etc. However, before examining the MOOC types, it can be meaningful to see some misusages and misunderstandings about MOOCs. Because there are many types of online courses that are confused with *MOOCs*. These online courses can have some similar features and characteristics with MOOCs, but none of them comprises all features of MOOCs. Some of them are explained below:

- **sMOOC:** synchronous massive online course (Patri & Balaji, 2016).
- **SPOC:** small private online course (Patri & Balaji, 2016).
- **ROOCs** are regional open online courses (Patri & Balaji, 2016).
- **MOCCs** are mid-sized online closed courses (Daniel et al., 2015).
- **BOOCs** have more than 500 participants (big but not massive) (Pilli & Admiraal, 2016).
- **DOCCs** are distributed open collaborative courses (Pilli & Admiraal, 2016).
- **MOORs** refer to massive open online research (Pilli & Admiraal, 2016).

Except for all online courses used in the same sense as MOOCs, when the MOOC literature examined, it is found that there are dozens of MOOC types. For instance, firstly, from the course offering time perspective, MOOCs have two general types: pre-defined schedule and self-paced (Mohamed & Hammond, 2018). While self-paced MOOCs can give flexibility to learners in terms of time, a pre-defined schedule fixed by the course instructor is open for a specific time period (Mohamed & Hammond, 2018). Secondly, MOOCs also can differ since they can be formal and certification-oriented MOOCs or non-formal and professional-development oriented (Littlejohn, Hood, Milligan, & Mustain, 2016). Furthermore, Tømte et al.'s (2017) study gives two different approaches. First is the national mediation approach, which supporting formal learning for niche-market types of MOOCs, and the second is the global disruption approach, which supporting informal learning for mass-market types of MOOCs. So, it is possible to claim that the national mediation approach is less used and provides more accreditation studies while the global appeals to wider audiences without accreditation concern. Thirdly, they can be categorized based on massiveness and openness dimensions (Pilli & Admiraal, 2016). Pilli and Admiraal (2016) state these two dimensions also have four categories: small scale and less open, small scale and more open, large scale and less open, and lastly, large scale and more open in MOOCs. This classification may lead instructional designers to different choices and design principles (Pilli & Admiraal, 2016). Fourthly, there are language MOOCs, hybrid MOOCs (Alturkistani, Lam, Foley, Stenfors, Blum, Van Velthoven, & Meinert, 2020), or Thai MOOCs (Anutariya & Thongsuntia, 2019), which have specific instructional aims.

Lastly, from the pedagogical approach perspective, generally, three dominant pedagogy to lead the MOOC types: behaviorism, socio-constructivism, and connectivism (Dron & Anderson, 2011). Moreover, although they can be more specific and rarely seen examples in the MOOC literature, there are several other types of them that differentiate based on the purpose, user demand, government policy, activity type, learning motivation, etc. Some of the most used and popular MOOC types and the details are presented below:

cMOOCs follow the original "connectivist" model (Siemens, 2013; Clark, 2013; Gerber, 2014). They provide content created by learners, a more constructivist and collaborative learning approach, more social interaction (Terras & Ramsay, 2015; Mohamed & Hammond, 2018). In 2008, MOOCs were first designed around the connectionist learning theory specific to unstructured learning processes, and first-generation connectivist cMOOCs emerged (Siemens, 2013). They can be seen as non-traditional, more learner-centered (Dron & Anderson, 2014), and a more informal learning form of MOOCs (Fidalgo-Blanco et al., 2015).

xMOOCs have a traditional instruction model and behavioristic pedagogical approach (Haavind and Sistek Chandler 2015; Guàrdia et al. 2013). In other words, they are more institutionalized and tightly structured than cMOOCs (Siemens, 2013; Gerber, 2014). xMOOCs have short videos and quizzes (Terras & Ramsay, 2015; Bayne and Ross, 2014), and they are related to more formal learning (Fidalgo-Blanco et al., 2015). In 2011, MOOCs attracted the attention of higher education, lifelong learning environments, and popular media, and traditional MOOCs have emerged as a reflex and extension of structured teaching processes over time (extension MOOCs -xMOOCs) (Zawacki-Richter, 2017). xMOOCs are also called as transferMOOCs (Clark, 2013).

KMOOCs are created in 2015 with the support of the Korean government. Top universities of Korea and major MOOC providers together created KMOOCs with three approaches: course content, credential system, and government support (Joo, So & Kim, 2018).

sMOOC refers to social- seamless MOOCs (Brouns et al., 2014). They provide a more holistic approach like an intersection of "socio-constructivism, gamification, ubiquitous learning, and digital inclusion" (p. 55) and traditional issues of open education like social networking and Web 2.0 tools (Patru&Balaji, 2016). Badges, digital literacy resources, and learning communities are the elements of sMOOCs. Generally, collaborative-decentralized scenario development mode is used as it is in OpenupEd.

pMOOCs focus on the issue of engagement of the learners regarding problem-solving or collaboration for a project (Kim & Chung, 2015). *Besides*, they can be defined as "Project-based MOOCs" as stated by Pilli and Admiraal (2016).

hMOOCs refer to hybrid MOOCs (Alturkistani, Lam, Foley, Stenfors, Blum, Van Velthoven, & Meinert, 2020) since they are a combination of face-to-face classes and online course (Haavind & SistekChandler, 2015). In 2013, the first hybrid MOOCs emerged, and then hybrid MOOC was introduced to take the strengths of connective and traditional examples (Bozkurt, Kilgore, & Crosslin, 2018).

mMOOCs refer to mini MOOCs since they have an enrollment limit (smaller *than* 500 students) (Haavind & SistekChandler, 2015).

miniMOOCs offer short and intensive course content is offered, *and* they are generally linked with Open Badges (Clark, 2013; Blackmon & Major, 2017).

groupMOOCs create groups for collaboration and retention (Clark, 2013). Their pedagogy resembles networking and learner interactions, likewise in cMOOCs, but they are more structured than cMOOCs (Gamage, Perera & Fernando, 2018). NovoEd platform can be an example for groupMOOCs (Clark, 2014; as cited by Pilli & Admiraal, 2016).

VET MOOCs focus vocational learners for gaining practical skills with less intensive knowledge and assessment outcomes (Paton, Fluck & Scanlan, 2018), so they have "practical work-based applications" (p.595).

adaptiveMOOCs include dynamic assessments, gather data from learners to create a personalized learning environment (Clark, 2013). They provide “tailored learning experiences based on dynamic assessment and data gathered during the course” (Pilli & Admiraal, 2016, p. 230).

asynchMOOCs are defined as “MOOCs on-demand” and they have no start or finish date (Clark, 2013, Major & Blackmon, 2016).

synchMOOCs have a clear start and finish dates and deadlines for assessments (Clark, 2013).

madeMOOCs include problem-solving activities, more challenging assignments, and peer studies, etc. Udacity MOOCs can be seen as examples of madeMOOCs (Clark, 2013).

Corporate MOOCs are different from academic MOOCs since they are open only to the employee and employers within an organization, and they are related to the face-to-face instructional elements (Radord et al. 2014; Egloffstein & Ifenthaler, 2017).

Enterprise MOOCs focus on digital workplace learning and offer alternative perspectives on measurement (Egloffstein & Schwerer, 2019).

Network-based MOOCs’ pedagogy is related to connectivism, and discovery learning is essential (Pilli & Admiraal, 2016). Implementing traditional assessment methods are more challenging in Network-based MOOCs (Lane, 2012; as cited by Pilli & Admiraal, 2016).

Moreover, it is possible to classify MOOCs based on low, medium, and high degrees in terms of openness, quality assurance level, the amount of multimedia, communication, collaboration, etc. (Conole, 2013; as cited by Blackmon & Major, 2017). So, as seen, there can be a big diversity in the MOOC world, and it is not feasible to classify one of

the MOOC types is better or worse than the others (Bali, 2014) since they can include different motivations, advantages, reasons and dynamics for learners.

2.2 Advantages and contributions of MOOCs

MOOCs have several unique contributions to the community, field, and economy, etc. It is possible to claim that some of the remarkable advantages of them are related to being an element of open and online education since the MOOC phenomenon cannot be isolated from the other developments in the fields of open and online learning and instructional technology (Zawacki-Richter, Bozkurt, Alturki, & Aldraiweesh, 2018). Many other advantages of them depend only on being MOOC. So, the following list presents a holistic approach about the contributions, enablers, advantages, and pros of MOOCs:

- providing unique, equal opportunities for education and social justice (Abas, 2015; Lambert, 2020).
- promoting lifelong learning (Patru & Balaji, 2016).
- contributing to democratic learning environments (Sari, Bonk & Zhu, 2020; Patru & Balaji, 2016; Gerber, 2014).
- creating opportunities for disadvantaged people (Patru & Balaji, 2016).
- creating an opportunity for people who are not able to afford formal education (Patru & Balaji, 2016).
- gaining reputation / visibility of institutions (Allen & Seaman, 2014; Hollands & Tirthali, 2014)
- inclusive approaching to education (Lambert, 2020)
- usage and re-usage of MOOCs as educational materials (Patru & Balaji, 2016)
- making available high-quality content for free (Hollands & Tirthali, 2014; Patru & Balaji, 2016)
- supporting a more connected learning environment (Gerber, 2014).
- generating feasible outcomes (Patru & Balaji, 2016)
- operation ability for multi-stakeholder processes, which include the private sector, higher education institutions, and governments, etc. (Patru & Balaji, 2016)

- providing job-oriented training and professional development (Wang, 2016; Patru & Balaji, 2016; Walia, 2020).
- creating solutions for the developing world's lack of access to education (Allen & Seaman, 2014; Hollands & Tirthali, 2014; Liyanagunawardena, Williams & Adams, 2013).
- presenting scaleable instructional technology (Patru & Balaji, 2016)
- monitoring learners' performance (Walia, 2020)
- meeting to the needs of learners or societies (Hollands & Tirthali, 2014, Jansen, Schuwer, Teixeira & Aydin, 2015)
- cost-effective delivery (Allen & Seaman, 2014, Hollands & Tirthali, 2014; Egglofstein & Ifenthaler, 2017)
- easy to access resources (Wang, 2016; Egglofstein & Ifenthaler, 2017)
- creating an innovation area (Allen & Seaman, 2014, Yuan et al., 2014; Hollands & Tirthali, 2014)
- supporting self-paced learning through MOOCs (Rafiq, Hashim, Yunus, & Norman, 2020; Santandreu Calonge et al., 2019).
- supporting self-regulated learning through MOOCs (Zalli, Nordin & Hashim, 2020; Jansen, van Leeuwen, Janssen, Conijn & Kester, 2020)
- providing forums for communication (Mohamed & Hammond, 2018).

To summarize and specify, it is important to answer this question: While there are already millions and various online courses in the world, why MOOCs gain more importance? The study of Sari, Bonk, and Zhu (2020) clarify this issue with the following reasons:

- "Democratizing education, i.e., MOOCs are a means to provide quality education for anyone who seeks such learning opportunities
- Promoting an institution's brand
- Attracting new learners to enroll in an institution
- The potential for research and development in online education; and
- The potential for collaborating with other institutions
- Transforming traditional teaching and learning approaches" (Fadzil et al. 2015, p.145).

One of the important motivations to create a MOOC is instructors' ambition for sharing their content and resources with the world community (Sari, Bonk & Zhu, 2020). Also,

MOOCs are the only instructional technologies created by educators, while other technologies such as radio, tv are created for other sectors and by different people (Patru & Balaji, 2016). So, MOOCs can be seen as an essential contribution of educators and instructional designers to society in social, economic, cultural, and democratic terms.

2.3 Limitations and challenges of MOOCs

Although MOOCs continue to bring many and considerable advantages to our life and education world for nearly 20 years, there are still important obstacles that are very similar to the ones belong to e-learning, distance learning, or open learning, etc. Because MOOCs can be seen as an extension of improvements in e-learning. Therefore, unfortunately, there are still similar judgments like “no understanding of the private and social benefits of distance and online education in comparison with those of face-to-face education” (Rumble, 2014, p. 208.) based on some unique MOOC challenges or general open and online limitations. From the same perspective, some scientists believe that MOOCs are not of great importance because they undermine their reputation because of high-drop-out rates, weak assessment methods, and accreditation challenges, etc. (Pilli & Admiraal, 2016).

Although the presence of MOOCs brought several challenges and risks to the educational community (Gerber, 2014), it should be noted that many of the following challenges depend on the difficult-to-manage structure of online learning environments. For instance, lack of motivation, lack of interactivity, and quality of instruction, challenges represent problems that are more general. Another example, socio-cultural challenges are also valid for all international education institutions. On the other hand, learning obstacles like lack of time, attitude, usability problems, lack of familiarity with e-learning concept, unattractive or unsatisfied courses (Zielinski, 2000; Mungania, 2003; Gosling & Westbrook, 2004; Ali & Magalhaes, 2008; Mousavi, Mohammadzede Nasrabadi&Pezeshki-Rad, 2011) in distance education field seem to be gradually overcome. Another aspect, due to the massiveness of MOOCs, as the number of learners grown, challenges also get bigger (Walia, 2020). In this regard, the following list includes both E-learning limitations, including MOOCs, which can be regarded as

general and continuous limitations for many e-learning environments and unique MOOC limitations:

Motivation: Lack of motivation problems in e-learning environments (Muilenburg & Berge, 2005) remains a challenge in MOOCs (Maya-Jariego et al., 2020). Motivation-related factors such as attention, retention, and maintaining interest, etc., cannot also be provided by a tutor in this kind of learning environment (Walia, 2020). Although the effect of motivation on completion is still not clear, it is a remarkable predictor for learner engagement (Semenova, 2020). On the other hand, sometimes even just to begin the course (voluntarism) can be a barrier even though learning platforms include job training (Chung, Lee & Liu, 2014) because learners need to be self-directed and self-supervised in MOOC like environments (Wong et al., 2019) with self-motivation. Besides, since adult learners engage in any kind of learning activity differentiate remarkably from students in a school context (Chung, Lee & Liu, 2014), having a certificate, supporting more self-directed learning, or to be able to achieve job-related task can be more suitable motivators for adults.

Interaction: Interaction is a significant criterion for the quality of online learning (Trentin, 2000) and also for MOOCs (Khalil & Ebner, 2013). So, lack of interaction can be an essential barrier to effectiveness since learning is a social activity and learners need to communicate with the instructor, other learners, and the learning environment (Chung, Lee & Liu, 2014; Rabiee, Nazarian & Gharibshaeyan, 2013; Muilenburg & Berge, 2005). Moreover, maintaining participants' interactions is another critical problem for MOOC providers (Sari, Bonk & Zhu, 2020). There are many studies that emphasize promoting human relationships and helping users with needed feedbacks referring to the interaction that should exist (Rabiee, Nazarian & Gharibshaeyan, 2013; Muilenburg & Berge, 2005).

Socialization: Based on the difficulty of studying online (Rabiee, Nazarian & Gharibshaeyan, 2013) and the importance of online socialization in learning (Patru & Balaji, 2016), creating online socialization is crucial. Also, Rabiee, Nazarian & Gharibshaeyan (2013) suggest that social learning's advantages can make the learning process more comfortable by increasing the interaction among users. Muilenburg &

Berge (2005) have found that the strongest relationship in their study is between online learning enjoyment and social interaction; therefore, this finding also justifies the need for social interaction. However, the elements of online socialization can be very challenging. For instance, the importance of forums in social learning is undeniable (Jiang, Zhang, Liu, & Li, 2015). Learners may encounter problems like information overload, irrelevant posts, and chaos, etc. (Brinton et al., 2014 as cited Wise et al., 2017). So, it is tricky and confusing to manage and navigate forum discussions in MOOCs (Hollands & Tirthali, 2014). Forum-related problems are seen in traditional discussion forums for nearly twenty years (Herring, 1999 as cited Wise et al. 2017) are more challenging for MOOCs due to the learner number (Wise et al. 2017). “Managing tension, rudeness, alienation, and intense debates” are also the other general *problems* that can be faced comments, chats, etc., by instructors (Sari, Bonk & Zhu, 2020, p.155).

Technical issues: Parallel to the previous problems, creating an interactive and usable e-learning system mainly depends on the infrastructure of the environment itself (Chung, Lee & Liu, 2014). On the other hand, digital literacy is needed to use these kinds of online materials (Walia, 2020). For instance, Muilenburg & Berge’s (2005) study reveals that technical infrastructure may not allow the learners to use the system correctly. If technical problems cause the prevention of any kind of interaction, then flexible access to information will not be possible, and the link between users and the system cut (Rabiee, Nazarian & Gharibshaeyan, 2013). For instance, the technical/technological problems of MOOCs (Najafi et al. 2015; Alario-Hoyos et al. 2014) like infrastructure problems (Castillo, 2015), tracking participants’ learning progress, and “receiving adequate technology (hardware) support” (Sari, Bonk & Zhu, 2020, p155) can be the examples of significant problems in design and implementation phases.

Instructional quality: Selecting and implementing appropriate instructional strategies is always a significant challenge. In addition to choosing, learner-centered approaches create several challenges since they need more activity, feedback and control mechanism, or materials which are hard to design for instructional technologists (Gunawerdana & McIsaac, 2003) or instructors/SMEs. The debates on the quality of open online education are also a popular topic for years (Stracke, 2019; Oh et al., 2019).

So, instructional quality (Mengual-Andres, & Durán, 2017; Stracke 2019; Oh et al. 2019; Schlöglet al., 2019) and) is also a big challenge for MOOCs. On the other hand, nowadays, an in-depth pedagogical debate is still missing, as Guardia et al. stated in 2013. Several research studies indicate the limitations of some traditional MOOCs like lack of peer-peer interactivity, supporting learners' reasoning and motivation (Liu et al., 2015), providing timely feedback (Zhu et al., 2017), creating instructional support (Zhu et al., 2017) pedagogical considerations (Alario-Hoyos et al. 2014; Margaryan, Bianco & Littlejohn, 2015). Also, Mathes (2019), in his research examining global quality from a broad bit perspective, stated that there is a lack of quality assurance tools for accreditation in many national organizations.

Measurement and evaluation: Online assessment (Castillo, 2015), *online* evaluation, automating grading (Sadigh et al. 2012; Xiong & Suen 2018), determining the suitable online assessments (Najafi et al. 2015) is the limitations that include other rather large technical and economic problems. The peer assessment is also a major challenge in MOOCs. Even if the evaluation is done at the right time and under suitable conditions, these two questions: 1. “Why then, should a student believe the comments of their peers?” (Hew & Cheung, 2014, p. 52) and 2. “Three of my peers graded my paper. They were kind overall, but I bristled at every slight. Who died and made you professor?” (Jacobs, 2013, p.7). Moreover, the evaluation of learners' works in a MOOC environment can be counted as a major challenge in Hew and Cheung's (2014) study.

Instructor/ SME related: There is a resistance to creating online content by the faculty members (Rabiee, Nazarian & Gharibshaeyan, 2013), and still, most of the SMEs and instructors are not familiar with online learning (Patru& Balaji, 2016). On the other side, determining/specifying the right content and activities (Zhang, 2013), determining the suitable online assessments (Najafi et al. 2015), providing timely feedback, personalizing participants' learning, and obtaining needed technical support (Sari, Bonk & Zhu, 2020) are big challenges for SMEs or instructors. Moreover, “engaging learning, encouraging collaboration, addressing time constraints, and developing course videos” (Sari, Bonk & Zhu, 2020, p. 143), and “having a sense of speaking into a vacuum due to the absence of

student immediate feedback "(Hew & Cheung, 2014, p.45) can be other examples of instructor related problems.

Socio-cultural issues: Socio-cultural challenges like lack of national strategy and preparation, pessimism toward to Internet, lack of socialization, willingness are always crucial in any kind of learning environment (Rabiee, Nazarian & Gharibshaeyan, 2013; Lin&Berge, 2015), cultural attitudes to learning issue (Patru & Balaji, 2016), and they can also be barriers for instructional designers (Gunawerdana&McIsaac, 2003) since generally target group in distance education includes more diverse learning communities who have the different cultural background, needs and beliefs. Similarly, MOOCs have socio-cultural barriers like language barriers (Walia, 2020), such as most of the learning content is English (Trehan, Sanzgiri, Li, Wang, & Joshi, 2017; Adams, 2019). MOOCs also reflect some other cultural differences such as communication tools, plagiarism, etc. (Liu et al., 2010; as cited in Chen, 2013). For instance, Chen (2013, p.9) adapted the following table from Liu et al.'s (2010) study to present some cultural differences between U. S and other countries. *Table 2.1* shows some cultural themes (adapted from Table 3, Liu et al., 2010).

Organizational issues: Funding, strategic planning/management, licensing of programs (Latchem et al., 2006), logistical considerations (Alario-Hoyos et al. 2014), some structural problems like lack of institutional preparations, lack of financial support of governments, highly expensive virtual universities inappropriate infrastructure (Rabiee, Nazarian & Gharibshaeyan, 2013), lack of technology training for practitioners (Gunawedana & MCIsaac, 2003), and time constraints (Najafi et al. 2015), or legal issues (Schlöglet al., 2019) can also be still valid challenges for MOOC design.

Table 2.1 *Some cultural themes about MOOCs (adapted from Table 3, Liu et al., 2010 as cited in Chen, 2013, p.9.)*

Dimensions	Cultural differences	Suggestions for course design
Assessment	exam-oriented vs. process-oriented; memorization vs. application	multiple assessment strategies; structured & flexible assignment schedule
Instruction/ Interaction	lecture vs. conversation; structured vs. less structured; deductive vs. inductive (case-based learning)	incorporate features that accommodate different cultural pedagogy
Asynchronous/ Synchronous	lack of visual cues caused communication barriers in asynchronous communication; scheduling issue for cross-cultural collaboration in synchronous communication; time zone differences	balanced use of asynchronous and synchronous communication
Collaboration	collectivism & masculinity vs. individualism & femininity; culture differences visible but did not negatively affect collaboration	appropriate cultural differences
Case learning	lack of global cases; lack of a relationship between U.S. case discussion & analysis & local issues of international students; lack of international experience in regard to the online instructors	balance the use of local and global cases; provide more context for culturally specific examples or cases
Academic conduct	discrepancies between U.S. & other countries' rules of academic conduct	more education and understanding, rather than pure punishment
Language	language barriers in reading, writing & communication	more planning and preparation; more audio/ visual aids

Financial considerations: These types of limitations are valid for both distance education (Alario-Hoyos et al. 2014) *and also* for MOOC portals (Schlöglet al., 2019). Because producing MOOCs can be very expensive for an institution (Hollans & Tririthali, 2014; Schlöglet al., 2019). As Walia (2020, p. 19) stated, “MOOCs are provided free, but the creation of content and other study material costs high. This cost can burden universities with extra financial issues”. According to Hollans and Tririthali’s study (2014), the production costs can be changed between 40000 dollars to 325000 dollars 6 years before. In addition, for operational issues, 10.000-50.000 dollars can be needed. Also, nearly 10 hours can be spent on managing the course per week and a total of 100 hours spent on the development of a MOOC (Patru&Balaji, 2016). Of course, these numbers can be changed based on the MOOC type.

Sustainability: Maintaining educational, technological, economic, and logistical quality can be another challenge (Latchem et al., 2006). So, in the design phase, most of the time, sustainability comes to the stage. The costs of hardware and software for the target group, costs of infrastructure support, and maintenance for the designers

(Naidu, 2006; as cited in Rabiee, Nazarian & Gharibshaeyan, 2013). Beyond that, providing sustainability in MOOCs is one of the biggest problems (Castillo, 2015). accessibility over time (Mulder & Jansen, 2015).

Massiveness: “The “M” letter in MOOC abbreviation refers to being massive and diverse in cultural, socioeconomic, demographic, and many other dimensions.” (Bozkurt, Akgün-Özbek, and Zawacki-Richter, 2017, p.138). Planning and designing instruction for lots of learners is complicated (Najafi et al., 2015; Zhu et al., 2017; Sari, Bonk & Zhu, 2020). So, MOOCs themselves and their design process can be challenging due to their massiveness as well as the open nature of MOOCs (Najafi et al., 2015; Zhu et al., 2017; Schlögl et al., 2019; Sari, Bonk & Zhu, 2020) differently from other learning environments.

Openness: “The openness can be considered as the biggest challenge for MOOCs and their quality. It means more than the free and open access: it can be related to open approaches, i.e., to use innovative approaches for learning and education” (Walia, 2020, p.18). Unfortunately, it is not possible to claim that many MOOCs are “open” as they should be. Beyond that, the *ID design of MOOCs is also tricky due to the open nature of MOOCs* (Sari, Bonk & Zhu, 2020). On the other hand, the openness concept seems to be under the hegemony of the anglo-saxon perspective (Lockley, 2018) for many open learning environments.

High dropout rates: The high dropout rates challenge (Rovai, 2003; Wang, 2013; Jacobs, 2013; Kolowich, 2013; Jordan, 2014; Halawa, Greene & Mitchell, 2014; Hollands & Tirthali, 2014; Hew & Cheung, 2014; Xiong et al., 2015; Diver & Martinez, 2015, Schlögl et al., 2019) can be regarded as a MOOC specific challenge since MOOCs allow learners leave without any condition. Instructors, designers, educators, or policymakers are aware of high dropout rates in MOOCs for many years. There may be several reasons for this dropout risk, like “attrition or lack of satisfaction,” and it is suggested educational interventions should focus and deal with this risk (Halawa, Greene & Mitchell, 2014), as many research studies stated.

Accreditation: The limitations of credits and certifications can be tough to handle in a MOOC (Chauhan, 2014; Patru & Balaji, 2016; Head, 2017; Schlögl et al., 2019). Because accreditation challenge has a comprehensive perspective, including the issues about how to integrate the course credits into the MOOC system, how they should be counted for gaining a college degree, etc. (Walia, 2020). On the other side, employers do not seem to honor the MOOC certificates or credentials since they might not reflect the job-related skills (Egglofstein & Ifenthaler, 2017).

To summarize, the focus of MOOCs is on ensuring access to education at any time from anywhere without fees. However, although the most remarkable characteristic of them was free (Liyanagunawardena 2015); nowadays, finding a free MOOC has become almost impossible. Also, MOOCs were for everyone and generally offered by prestigious (also they are expensive universities) like MIT, Harvard, and Stanford (Liyanagunawardena, 2015). However, now it is possible to encounter many moocists who are open to limited participants, and the quality of the course content is controversial. Except for all the above-mentioned problems, generally, people who live in developed countries prefer using MOOCs (O'Brien, 2015; Ho et al., 2015; Schmid et al., 2015), but the disadvantaged groups that MOOCs target more are still among the minority among MOOC users. Beyond that, expressly, it should be noted that developing countries have some other limitations like quality training of instructors/tutors, MOOC ID models and implementation, measurement and assessment methods, low motivation, etc. (Bonk et al., 2015).

2.4 pdMOOCs

After examining the challenges, enablers, suggestions, and guidelines related to MOOCs and their ID process, pdMOOCs, which are the focus of this research study, are introduced with all project details in this part. The following four subheadings help to clarify the details of why and how pdMOOCs originated and the instructional design project made to create a MOOC portal:

1. Analysis Phase Findings: SWOT Analysis, best practices analysis, need analysis survey, pdMOOC list topics, and categories.

2. The highlights of pdMOOCs: Some of the specific features, limitations, and similarities with the other MOOC types, etc.

3. The Instructional Approach of pdMOOCs: Inspired instructional approaches from the literature, analysis findings, and lessons learned from the pilot pdMOOCs.

2.4.1 Analysis Phase Findings

From the globalized world perspective, there are unlimited, mixed, changeable, and unstructured opportunities to learn, and consequently, it is important to decompose and select what is needed, what should be learned for people who are limited by time and place (Illeris, 2011). So, the analysis process has a significant role in the selection, arrangement, design, and application of all learning components taking place in any kind of training program. As a result, in the scope of the current project, analyzing the needs and demands of target learners was crucial for the effectiveness and efficiency of the training program before creating 100 MOOCs. According to the project framework, the Inception phase of the project in December 2015, and the preparations and examinations about analysis, design, and development started. It is possible to state that there were several analysis studies contributing to the project like study visits, stakeholder visits, steering committee meetings, literature and report examinations, or experience-sharing meetings, etc., three main analysis studies result in the project covered the results obtained from the whole analysis-related activities. These are 1. SWOT, 2. Best Practices Analysis and 3. Need Analysis Survey. As one of the important outcomes of these analyses, pdMOOC List Topics and Categories are introduced in this part.

2.4.1.1 SWOT Analysis

Organization of a focused meeting for performing Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis helped to gather information on ICT training demands of the target group. SWOT Analysis meeting was held with the participation of the 51 representatives of different public institutions, universities, SMEs, chambers of commerce, government, public institutions and NGOs,

Universities and continuous education centers, technoparks and technology development zones, startups, and R&D companies. This analysis is used to examine the training demands and needs of the SMEs in Turkey regarding ICT, as well as to detect the strengths and weaknesses of the stakeholders/partners in this project. Another purpose of this analysis was to reveal the opportunities and the threats that can affect the project's overall success. For this purpose, quantitative data from this survey and qualitative data from focus group meetings have been gathered and interpreted together to gain more valid data from participants. By conducting the SWOT analysis study during the initial phase of the project, particular and precise information was collected. Participation of different stakeholders in these meetings provided different perspectives on the issues at hand and allowed discussion of relevant topics. The results are provided in *Table 2.2*, and the detailed explanations about the results can be found in Cagiltay& Esfer's (2018, p173) study. According to the results, some of the inferences guided the project team are listed below (Cagiltay & Esfer, 2018):

- To provide the signature of METU's president on the certificates of attendance.
- To gather data from the demands of disadvantaged groups to use the pdMOOC portal
- To apply WCAG criteria for accessibility.
- To enlarge the help desk team and the number of online tutors.
- To enlarge activities aimed at raising awareness.

Table 2.2 *SWOT Analysis Table of Bilgeİş Project (Cagiltay& Esfer, 2018, p.173)*

STRENGTHS	WEAKNESSES
Knowledge and experience of METU in this field Easy accessibility of the portal Accessibility of MOOCs Providing training for free The needs of SMEs are addressed Power of access and influence to the end-user via networks Being an EU-funded project	The possibility of indifference towards the education of employers and employees, the inadequacy of the e-learning culture in Turkey is a problem for this portal, controlling participation in distance education is problematic, lack of achievement certificate may reduce participation, the system is free, but this positive feature may cause participation in Turkey.
OPPORTUNITIES	THREATS
Support of stakeholders (Promotion of Business and Professional Consultants, etc.), The spread of the Internet structure, Turkish resources are very inadequate. There is a large number of young people who need education and familiar with technology in Turkey. To close the gap between groups and regions, No competitor offering the same or similar service	Employers may want employees to take the online training after work hours, but those hours are weak regarding efficiency and attention Family-owned companies are not open to innovation Traditional employment processes (nepotism, etc.)

As can be understood from the SWOT analysis, there were not enough Turkish resources about ICT usage, but many young people need ICT training for their daily work. This finding was well known before project preparations began, and that is why one of the project motivations was to provide free ICT training. Surprisingly, the idea of providing MOOCs for totally free was declared as both a strength and weakness since many stakeholders foresee that free training causes a perception of worthlessness. So, although the suggestions related to charging reflect the truth in terms of Turkish culture, the project team did not accept them. Besides, another SWOT analysis for MOOCs in digital workplace learning in Egloffstein's (2018) study reveals in what ways MOOCs can differ from other forms of corporate training and has lots of similar findings with the Bilgeİş pdMOOC project SWOT analysis (*See Figure 2.1*).

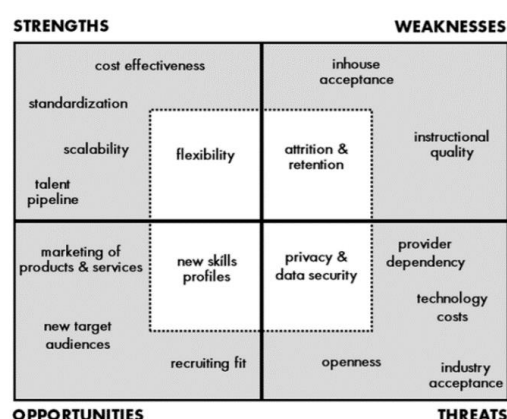


Figure 2.1 SWOT Analysis for MOOCs in digital workplace learning (Egloffstein, 2018, Fig. 9.3, p.161)

The inner boxes in *Figure 2.1* represent individual factors caused by or affecting the workers, and the outer boxes are organizational factors caused by or affecting the company in the SWOT Analysis for MOOCs in digital workplace learning (Egloffstein, 2018). So, when these two SWOT analyses are compared, most of the individual and organizational factors seem to apply to pdMOOCs as well.

2.4.1.2 Best Practices Analysis

The aim of the best practices analysis study in the Bilgeİş project was to provide a more in-depth look at the MOOC examples, ICT training for adult students, and online courses, which are successful regarding some determined criteria set by the researchers. To be able to select the best examples from an extensive area, the criteria set were like providing online training, online training in ICT, training of adults, informative online content (Cagiltay & Esfer, 2016). Therefore, many institutions, portals, and universities, etc., were analyzed based on these criteria between January and March 2016. The data collection methodology included both web search of the training portals, e-mail, and phone interviews with the authorized person, and content analysis of the institution reports (Cagiltay & Esfer 2016). *Table 2.3* represents this analysis procedure in detail.

Table 2.3 *Representation of Best practices Analysis Procedure (Cagiltay& Esfer, 2016)*

Deep Research Before Analysis			Initial List: 121 Examples	Final List: 31 Examples	
Countries	Examined Institutions	Online Learning/ MOOC Portals	Selection Criteria	Question Topics	Data Collection Methodologies
EU countries, BRICS countries, Turkey, USA, Canada, Norway, Switzerland, South Africa, India, Brazil, U. K	1.Ministry of Education, 2.Universities, 3. Technology Parks or development zones, 4.Relevant chamber or associations, 5. Adult education centers	Popular MOOC Portals like EdX, Coursera, Udemy, etc.	1. Providing online training to users/clients/students or employees/employers/unemployed 2. Having installed a platform for online training, 3. Providing online training in ICT, 4.Having experience in training adults, 5. Providing education/training/informative online content.	1. Target group, 2. Training programs, 3. Program design and development, 4.Platform functionalities 5.Participants 6.Enrollment and admission, 7. Delivery of training and certification	1. Web Search: Searching and analyzing the learning portals 2. Interview: e-mail and phone interviews with competent employees in the chosen organizations. 3. Document Analysis: Analysis of organization reports if they exist.

The final list has 31 successful examples that are selected from 121 examples and covered quite broad areas such as EU countries, BRICS countries, Turkey, USA, Canada, Norway, and Switzerland. This analysis was reshaped and conducted by using several question areas: “target group, training programs, program design and development, platform functionalities, participants, enrollment and admission, delivery of training and certification.” (Cagiltay & Esfer, 2016, p.140-143). So, in the following table (See Table 2.4), the summary of the examined examples are presented.

Table 2.4 *Some common and unique features of MOOC portals (Adapted from Cagiltay & Esfer's study, 2016, p.140-143)*

Categories	Findings
Target Groups	The target groups in examples provided mostly cover adult learners: employed, unemployed as individuals or company based. However, some of the examples provided target even pupils, young students, teachers and trainers. Some targets people with disabilities or immigrants in the country. Outreach is also different from local, regional to global.
Training programs	Training programs covered by the institutions differ from short courses for employers or employees to long study programs like bachelor or master programs. The whole range of different topics is also present like business topics, ICT, science, health, creative skills, art etc. Among others ICT topic is widely present in both forms: for business users or training for ICT professionals. The approaches to development of training programs also differ from institutions to institution. Usually on universities, training developers are their teachers and, on some places, the work is outsourced to the professional companies. In some cases, there is only one author per courses, while in other the whole multidisciplinary team is engaged. Some of the examined institutions are MOOC hubs, which provide the infrastructure to the content providers, mostly universities. Most of the courses provided are in English language, and some of them are in local languages. However, European portals tend to provide courses in many languages, and there are some good examples of organization and technical solutions in bridging language barriers.
Enrolment and Delivery	The whole range of enrolment approaches is also present here from totally free courses to the courses with the reasonable prices. There are also some conditional approaches like the course is free until the learner wants to earn the certificate or to have a tutor support. In some universities, the enrolment is automatic, by becoming the student of the university, the access to the online portal is automatically provided. Most of the learning providers don't put any pre-conditions for enrolment, only few of them have some pre-conditions in terms of knowledge and skills before enrolment. Those pre-conditions could be diploma or certificate, as well as the results on pre-test. Modes of delivery are from fully online both self-paste and with the online tutor support in both synchronous and asynchronous modes. Some of the portals tend to promote social constructive learning, while some courses and lessons are delivered via videoconferencing.
Portal functionalities	Most of the examples examined use the standard features of virtual learning platforms like showing videos, texts, images, graphics, quizzes, assignments, assessment, tracking etc. There are different learning management platforms like Moodle, other open-source solutions, and commercial solutions and customer-developed by the learning provider. During examination some other functionalities and features were found and could be interesting for consideration like: Multilingual usage, ticketing of participant's requests, learning analytics, socio-economic/demographic profiling, transcription and translation systems, personal learning environment – in order to build own personal courses, automatic speech recognition, accessibility features, integration of different tools with the platform like practical work, interaction with peers, connection with other tools and services, providing information how many participants used the materials and ranking of materials, some social media functionalities – profiles and connections, likes etc., bookmarking and downloading videos, and collaboration on materials development.
Assessment	Since quite different examples were covered, the assessment methods also differ. Both approaches are present: automatic and human grading by instructor/tutor, as well as peer assessment, is used by some providers, not by many of them. Automatic grading can be done mostly using quizzes, interactions, or completion criteria, while different assignments, written examination, group tasks or projects, papers, and exercises, as well as participation in discussion forums, can be assessed by tutors or peers. In one example remote usage of hardware for assessment is presented as innovative method used for students from Africa who don't possess required equipment. For the purpose of the course and assessment, the equipment is provided for them remotely and they can acquire the skill that way, as well as be assessed and get feedback.
Certification	Mostly certificates of achievement are given to the participants. Participation certificates are also given by some providers. While some providers focused mostly on skills don't give any certificate to participants. Certificates are mostly in electronic form, while some universities and adult education centers provide hard copy certificates. Electronic certificates are mostly protected by QR code. Universities, colleges and continuous education centers tend to provide qualifications to their successful participants and their programs are mostly accredited by governmental institutions or professional bodies. So, some certificates can also provide ECTS points to their holders. Additionally, some MOOC providers or adult training providers establish partnerships with universities, industry or vendors in order to provide renewed certificates to their participants. MOOC portal usually offer two types of participation: with or without certification. Participation without certification implies mostly only access to the materials, but not to the assessment or discussion forums and it is usually free, while the certification option implies fee for enrollment and it is often time limited. Some providers offer certificates for multiple courses. Besides certification, some providers offer badges for some levels of achievement or completion.
Follow-up	There are different methods present to keep contacts with former participants or alumni. The most dominant is e-mail communication with the current and former participants. However, some other marketing methods are used like social networks, telemarketing, testimonials and students' success stories, news and interesting content on the provider's web site, online advices, and tolls for alumni.

In Cagiltay and Esfer's study, they conclude that the analyzed examples are very different though their aims and missions have so similar. The majority of the suggestions coming from the successful institutions include microlearning strategies and also focus on the need for MOOCs for managerial skills. All of the other procedures, lists, and results in the best practice analysis study can be found in Cagiltay and Esfer's (2016) study.

2.4.1.3 Need Analysis Survey Results

In Bilgeİş Project, the need analysis study aimed to analyze and identify workers and managers working in Small and Medium Enterprises in Turkey. Therefore, the researchers conducted a complementary survey that can determine the target groups' learning needs, demands, and currents situation in Ankara, İstanbul, İzmir, Eskisehir, and Gaziantep (Esfer & Cagiltay 2018). The research team used to face-to-face survey technique with 585 employers and 1030 employees. The results of the survey provided more than 200 pdMOOC topics in seven categories: "Hardware related, Business Software Related, Internet-related, (Enterprise Resource Planning and Customer Relationship Management, Sector-Specific, Managements Skills, Individual Development." (Esfer & Cagiltay, 2018, p.176). In addition, the results indicated suggestions about using reasonable size learning objects, a modular system for pdMOOCs, and authentic assessment (Esfer & Cagiltay 2018). All other details about the learning need analysis survey can be found in Esfer & Cagiltay's (2018) study.

To sum up, after examining the results of the several analysis studies (Need analysis study, SWOT, best practice analysis study, literature review, etc.), pdMOOC topics and categories have emerged. However, it should be noted that some of the course names and their contents were formed independently of these analysis studies with the suggestions and educational guesses of the experts. *Table 2.5* shows pdMOOC Topics and Categories (Esfer & Cagiltay 2018).

Table.2.5 *pdMOOC Topics and Categories (Esfer & Cagiltay 2018)*

Categories	MOOCs
New Technologies	Introduction to 3D Printer Technology, Use of 3D Printers in Different Sectors, Drones and Their Commercial Use, Virtual Reality for SMEs, Wearable technologies with Lilypad, Benefiting from Solar Energy, etc.
Healthy and Safe Workplace	Mobbing in Workplace, Healthy Life in the Office, First Aid, Occupational Health and Safety, Accessible Workplace Design, etc.
Programming	Basics of Programming, Mobile Programming with App Inventor I, Mobile Programming with App Inventor II, IOS Programming with Swift, Python Programming I, Python Programming II, Robotics Programming, etc.
Office Applications	Bookkeeping in Excel, OpenOffice Writer, Database Management with OpenOffice Base, Circular Mail, Database Management with MS Access, Pivot tables in Excel, Macro Applications in Excel, OpenOffice Calc.,etc.
Cloud Technologies	Introduction to Cloud Technologies with Google Drive, Creating Online Forms, Effective Presentations with Google Slides, etc.
Productivity	Online Advertising, Search Engine Optimization I, Search Engine Optimization II, Social Media for Your Job, Increase Your Security on the Internet, Data Security and Recovery, Introduction to Design Thinking, etc.
Business Development	Basics of Project Management, Project Management Software Projectlibre, Intellectual Property Rights for SMEs, Odoo (OpenERP) Integrated Work Management Application, Move Your Business to the Internet, Creating Difference with Right Marketing Communication, Key to Technology and Productivity: Innovative Companies, Quality Certification Processes for SMEs, International Trade, ICT Experiences of SMEs, Recruitment Process, Funding Support for SMEs, Institutionalization and Branding in SMEs, Food & Beverage Services, Showcase Design, etc.
Soft Skills & Personal Development	Customer Relations, Coping with Problematic People, Personal Stress Management, Stress Management in Corporations, Leadership, Innovation, Visual Design principles, Conflict Management, Crisis Management, Complaint Management, Role of Managers in Managing Stress and Situational Leadership, Visual Design principles, etc.
Audio and Video	Audio Production and Editing Using Audacity, Video Editing with DaVinci Resolve, Video Editing with Movie Maker, Video Shooting Techniques and Shooting a Wedding Video, Adobe Spark , Teleconferencing Tools, etc.
Photography Graphics	Photography Techniques I, Photography Techniques II, Product Photography, Digital Photo Editing with Picasa, Editing Pictures with Adobe Lightroom, Basics of Photoshop, Basics of Photoshop II, Designing Digital Promotion Materials, Designing Infographics using Canva, Designing Infographics with Adobe Illustrator, Working with Images using GIMP, Creating Corporate Identity with Adobe Illustrator, Designing Brochures with InDesign, etc.
Web Design and Development	Basics of Web Design, HTML5-CSS3 I, HTML5-CSS3 II, HTML5-CSS3 III, Creating Web Sites Using WordPress, Creating Web Sites Using WordPress II, Creating Web Sites Using WordPress III, etc.
3D Design and Modeling	Introduction to 3D Modeling, Autodesk123D 3D Modeling, 3D Scanning, Solid Object Modeling-FreeCAD, CAD/CAM Fundamentals, etc.
Microcontrollers	Introduction to Microcontrollers with Arduino, Microcontrollers with Arduino II, Microcontrollers with Arduino III, Basics of Electronics, Developing IoT Applications with Raspberry Pi, Raspberry Pi for Beginners, Raspberry Pi for Advanced Levels, etc.

If it is needed to categorize the pdMOOCs in terms of timing, there were three types of courses. Firstly, pilot ten pdMOOCs were produced in the early times of the project in

order to guide and format the other pdMOOCs. Then, while 79 pdMOOCs were designing based on the experience and standard of the pilot pdMOOCs creation process, 11 high-quality pdMOOCs were planned by the project team. Totally, there are social skills (15) or ICT skills-oriented (64) and 11 high-quality pdMOOCs (contents covering the future's jobs).

Pilot pdMOOCs: In order to save time, create some prototypes and standards in the project, it was aimed to produce ten courses first and to move to other production periods with the lessons learned from the design process. The pdMOOC platform includes listed course topics for the first cycle of MOOC production as predetermined ten courses. The predetermined courses, as well as the other 90 courses, are being developed in accordance with the analysis findings. In order to meet all the requirements of the target group, the course development activity was broken down into smaller activities whose outputs should be checked and approved by the Beneficiary. Names of the pilot pdMOOCs: How to increase your businesses' visibility in social media, Introduction 3D Printing Technology, How to carry your business to the Internet, 3D modeling, Digital photography and preparing digitally printed photo album, Introduction to Mobile App programming, Introduction to Microcontroller Programming, How to prepare your digital promotional materials, Increase your online security, and Use online office tools to support and back up your daily business. The development of the pilot pdMOOCs contained the following steps:

- Writing the raw content of the course
- Creating the storyboard, which includes all the explanations of the learning objects of the course: animations, simulations, videos, interactions, questions, etc.
- Development of the course – recordings and development of the learning objects in accordance with the storyboard, creating SCORM packages.
- Opening the course on Moodle, uploading all the materials, creating quizzes, assignments, conditions, activities, forums, etc.

High-Quality Courses: In this kind of pdMOOCs, the topics cover future's jobs, and production technologies are generally Unity applications, 3D applications, simulations, video branching, gamification, automatic evaluation or expert feedback system, virtual reality, etc. different from the other pdMOOCs. Names of the high-quality pdMOOCs: Drone operation, Wedding Videos, Virtual Reality, Wearable Technologies, Solar

Energy, Store Window Design, First Aid, Basic Electronics, Accessible Workplace Design, Food, and Beverage Service, and How to start an innovative company?

2.4.2 The highlights of pdMOOCs

The main idea behind the pdMOOC creation was to support the professional development of adults through the Bilgeİş portal, which aims to support the adaptability of employees and employers to the new social and economic structures. Therefore, it could be possible to increase the adaptability of the target group by investing more in human capital via ICT services and tools. This specific aim reshaped the MOOCs' structure, model, and approach due to workplace needs, society needs, learning needs, and difficulties of continuous professional development, etc. Unlike known MOOCs, pdMOOCs have a structure that can be completed in a shorter time (approx. 3 weeks or shorter) and easily. Some elements of MOOCs differentiate pdMOOCs from other types of MOOCs. For instance, the course structure, users' motivations, course topics, and some instructional elements of pdMOOCs are slightly different from other known MOOCs (Esfer & Cagiltay, 2018). The needs of all working and non-working adults are based on their daily needs, like their daily lives or work environments. pdMOOCs are generally filled with simple and practical information to solve the problem given in a particular theme. The following subsections present pdMOOCs' general characteristics, their limitations, inspired instructional approaches, ID Models, and ID process. The details of these subtopics content can be found in Esfer and Cagiltay's (2018) study.

Topics: In the Bilgeİş project lifetime, 100 pdMOOCs were created. The majority (80) of the pdMOOCs addressed ICT related topics, and the others are soft skill-based.

Scope: The scope of the pdMOOCs is generally limited to basic skills so that they could be completed in a short timeframe.

Course levels: If required, the same topic is delivered as different course categories for learners' skill levels, such as beginner or advanced.

Content examples: pdMOOCs contents can foster problem-solving skills and deal with daily problems, and they are divided into approximately 3–4 meaningful parts.

Presentation of the course: Similar to xMOOCs, pdMOOCs can offer small units that are easy to understand and complete. Course contents can be divided into meaningful parts, and learners can complete each part with a level of success in order to proceed to the next part.

Summarization: Similar to other MOOCs, a summary can be provided to inform learners about the course and help them to select the courses they need. The summary can include a list of learning outcomes, the estimated/expected time commitment of learners, if any pre-requisite skills or knowledge, etc., exists.

Branching: According to learners' progress, course contents may be branched, and additional resources may be provided to reach the aim of the courses. Course contents are chunked and delivered via multimedia materials that are designed according to target learners' characteristics and skill levels. According to learners' progress, additional resources may be provided in order to reach the aim of the courses that is to develop ICT based skills.

Course duration: Generally, course duration time is 4-8 weeks in the popular MOOC portals such as FutureLearn, EdX, NovoEd, Coursera, Iversity, etc. (Gamage et al. 2018) while pdMOOCs can be completed in 2 or 3 hours since their simplified content (Cagiltay, Esfer & Celik, 2020). Moreover, the length of each video material can be 3-15 minutes. Meanwhile, the total duration of video materials for each course no less than 60 minutes, and the average duration of 100 courses are approximately 120 minutes. Multimedia materials should be of high quality. They can run independently of the platforms and capabilities of learner computers.

Audio-visual materials: Multimedia materials could involve audio, videos, animations, simulations, and human presence, etc.; pdMOOCs can include more audio-visual elements and less reading materials, unlike academic/formal MOOCs. Besides,

multimedia design principles cover personalization, presentation type, pre-training, segmentation, temporal proximity, spatial proximity, redundancy, signal, consistent; multimedia principles suggested by Mayer (2009) can be implemented considering the increasing learner's motivation and achievement in teaching materials.

- **Motivation:** Like other MOOCs, before beginning the course, course topics, learning objectives, goals and outcomes, assessment policy, and certificate requirements can be provided. According to a predetermined achievement level, a statement of accomplishment for learners is generated. On the other hand, audio-visual materials can involve interaction in order to grasp learners' attention and increase their motivation by job-related problems.
- **Interaction:** Audio-visual educational materials can involve interaction in order to grasp learners' attention and increase their involvement. If the interaction is a question to assess the immediate response of the learners, the material proceeds according to the level of learners' understanding in order to help them reach the learning outcomes.
- **Flexibility:** pdMOOCs can encourage flexibility in activities through limitless trial and error and activities within the course for self-regulation and motivation for internal learning, which does not fuel the ambition of success or competition. Also, there is a possibility to start the course from anywhere, and lots of *test yourself* sections to create a more flexible learning environment. Since the pdMOOCs are self-paced, learners can review and pass a part that they are familiar with, but they may spend more time on another part that is new to them. Moreover, there is the advantage of limitless exercises through test yourself sections, which provide exercises and simulations for learners. Moreover, since the target learners are adults and pdMOOCs are offered freely, they are self-paced. Participants can review a part of the pdMOOC or pass it if they are already familiar with it. Also, Sometimes and for some pdMOOCs, if the interaction is provided with a question in the course, then the content can proceed considering to learners' understanding level.
- **Openness and licensing:** In the pdMOOC portal (bilgeis.net), all learning materials are open, and all pdMOOCs are always open. Also, all course materials

in this portal are available under the Creative Commons license. Under these license terms, pdMOOC materials cannot be used for commercial purposes. Besides, the tests/quizzes are always open for a new trial, and there are no limits for course completion or quiz/assignments, etc.

- **Accessibility:** WCAG 2.0 (all audio-visual materials have subtitles and transcripts. The theme is designed considering visual disabilities. Additionally, text, color, and content resize are available for the Moodle screens) criteria set is the guide for the accessibility issue of the pdMOOC portal and the pdMOOCs. When Elias's (2010) study about Universal Instructional Design (UID) Principles, Categories of Online Course Accessibility, and Recommendations for distance education was examined, it is possible to detect that pdMOOCs have similar accessibility principles. Since Elias (2010) evaluates the accessibility level of a sample online course in its LMS platform with these principles in her study and examines the principles which are coming to a review of accessibility-related product lists and literature, her recommendations to remove barriers to diversity and disability of learners have helped the project practitioners in ID process of pdMOOCs. The recommendations are listed below:

- a. equitable use (all content online, anywhere anytime)
- b. flexible use (links to additional information, choice of study topics/ assignments, etc.)
- c. simple and intuitive use (resume course, simple interface)
- d. perceptible information (screen preferences, font size, masking, colors, etc.)
- e. tolerance for error (ability to edit after posting, confirmation before sending assignments, warnings when leaving course site)
- f. physical and technical effort (limited use of external links, browser capability checker, etc.)
- g. learner community and support (study group, links to support services)
- h. instructional climate (availability for a one-on-one consultation, e-mail contact with students, etc.)

- **Assessment:** pdMOOCs focus on skills-based assessment and include both summative and formative assessment types. According to a predetermined success level, a statement of accomplishment for learners can be generated. There are two components of formative assessment: First, the responses of learners to immediate questions planted in audio-visual educational materials. These responses may be recorded for assessment, and the material can proceed according to the level of learners' understanding in order to help them reach the learning outcomes. Second, at the end of each part of the lecture, learners are assessed via quizzes and competence demonstrations. Besides, the level of learners' understanding and skill can be assessed as a summative assessment at the end of each lecture.
- **Evaluation:** Like other MOOCs, at the end of each part of the course, learners' progress can be assessed. When learners complete all parts of a pdMOOC, their level of skill and understanding is assessed. Generally, it is expected to complete each course with an average of 70% achievement in order to be qualified for certification in pdMOOCs. In other words, if the learner gets 70 points (%70 achievement rule) in a pdMOOC, then he/she can have the attendance certificate. The submission limit for each assessment component is two. In some pdMOOCs, due to the results of the assessment, learners may or may not proceed to the next part.
- **Online tutor support:** Online tutors who are real people can follow the learners, give feedbacks, can communicate via e-mail, and evaluate their assignments in 3 days (Max. 72 hours) after submission time in the pdMOOC portal. There is two times feedback opportunity for each assignment, e-mail communication in the course process, etc. and the online tutors of bilgeis.net give detailed feedback for all participants.
- **The Portal:** Anyone who has Internet access and a user account on bilgeis.net can reach the pdMOOCs and use any of the educational materials. All courses and components of the portal are accessible via desktop/laptop and mobile devices. The portal can enable file sharing, assignments, and grading. Forum, messaging, badget, and peer assessment features were not active on the portal

consciously. The portal includes various assessment tools, such as assignments, projects, and quizzes, to support different question types. Moreover, the learner-tracking mechanism is also available on the portal. Learners' level of understanding can be tracked and assessed due to course objectives and learning outcomes. Some user functions on the portal are also content search, completion status, course evaluation (for learners), vocabulary, etc.

Most of the stated features of pdMOOCs can be evaluated as advantages or pros. On the other hand, some decisions of the practitioners are also regarded as a limitation when compared to the other MOOCs. However, these limitations listed below were the decisions made by the project team considering the country and project conditions.

- **No social interaction:** There is no social interaction between participants like a forum, chat, direct messaging, etc. Since bilgeis.net continues to survive as a volunteer study, it is hard to control and detect messages, so it does not support any kind of direct communication with the other learners.
- **No peer evaluation system:** This lack is related to some cultural sustainability. At the beginning of the project, peer grading was introduced as a “human touch” by the project team, but then they decided that only online tutors should conduct pdMOOC evaluations. Because they concluded that peer grading could be very new and challenging for users, when the team evaluated user properties in Turkey, evaluation time, and objectivity, etc. Also, as Hew and Cheung’s (2014) study indicated, even if the evaluation is done at the right time and under suitable conditions, “Why then, should a student believe the comments of their peers?” (Hew & Cheung, 2014, p. 52) and “Three of my peers graded my paper. They were kind overall, but I bristled at every slight. Who died and made you professor?” (Jacobs, 2013, p.7) questions can be counted as a significant challenge.
- **No achievement certificate:** The certificates are just for intrinsic motivation, and they are like attendance certificates rather achievement certificates.

- **No instructor information:** No direct communication with the course instructor (SME), instead of e-mail communication with an online tutor.
- **No mobile application:** Mobility refers to accessibility to the pdMOOCs from smartphones, tablets, etc. Unfortunately, there is no application for now, but the studies are going on.

2.4.3 The Instructional Approach of pdMOOCs

MOOCs generally allow learners to join the courses and leave whenever and wherever they want. Therefore, if it is planned to create a MOOCs portal, which in learners cannot drop out easily and complete the courses they enrolled, designers should be careful and meticulous by applying appropriate pedagogy for the courses (Liyanagunawardena, Kennedy, & Cuffe, 2015). The pdMOOC Project team stated that if educational interventions focus and deal with these risk factors, dropout rates may decrease, as Halawa, Greene, and Mitchell (2014) suggested. For instance, making content related to real-life situations/problems can enable the courses more attractive, and they can be more beneficial for the target group. Although there is not a certain guide, theory, or approach on the ID process of pdMOOCs, to be able to develop effective pdMOOCs, there are several preliminary strategies like Gagne's nine steps of instruction's, Merrill's five learning design principles, micro training, Context-Based Learning (CBL), Problem Based Learning (PBL), authentic learning, etc. So, while creating a specific ID Approach for pdMOOCs, following principles, steps, and suggestions were adopted to create a theoretical framework to promote learning.

Gagne's nine steps: As one of the most powerful and most known ID principles that reflect behaviorist, systematic approach and flexibility and adapt to any kind of learning environment, Gagne's nine steps of instruction's reflections can help to design process (Gagne, Briggs & Wagner, 1992). 1. *Gain attention:* Learners' attention can be directed toward the topic by questioning or interesting source, etc.) 2. *Inform students of the objectives:* Explaining expected outcomes and assessment criteria can make a more clear and objective learning process. 3. *Stimulate recall of prior learning:* Planning some instructional activities to associate new information with existing knowledge through

personal experience can facilitate the learning process. 4. *Present the content*: It is important to divide content into meaningful and consumable parts. 5. *Provide guidance*: Giving instructional support through annotations and examples can guide learners in the learning process. 6. *Elicit performance*: In order to recall, utilize, and evaluate, instructors can plan specific activities, and so learners can elicit their performance. 7. *Provide feedback*: Providing feedback immediately in the learning process helps learners for correcting errors or determining misunderstandings and misusages. 8. *Assess performance*: Testing and controlling learning with predefined and clear criteria can provide an objective assessment of the learning situation. 9. *Enhance retention and transfer to the job*: Using concept maps, job aids, etc., can increase learning retention.

Merrill's five learning principles: These principles developed by Merrill in 2002 and provides a more holistic approach can promote learning: 1. *Task-centered principle*: Learning begins with real-life problems. There should be relations between problems and tasks in the learning environment. Learners should handle these problems. 2. *Activation principle*: There should be opportunities that create connections between existing knowledge a new knowledge. The learners' prior knowledge should be activated. 3. *Demonstration principle*: Several different presentations (visualizing, listening, etc.) of knowledge should appeal to different senses in order to increase learning permanence. 4. *Application principle*: To lead the learners practicing alone and applying new knowledge by making mistakes. Allowing the trial and error method to create self-learning opportunities. 5. *Integration principle*: Providing opportunities for knowledge integration through questions, assignments, discussions make internalization.

Micro training: As a concept, micro training has been developed in the framework of the Leonardo da Vinci program of the European Union. The theoretical basis of this method is concerning Social Constructivism and Connectivism. As an example from many years ago, Harward Macy Institute programs used to present 12 minutes learning modules, which include videos and assessment activities to maintain the learner's focus (Chung, Lee &Liu, 2014). Micro training can also support informal learning close to the workplace to develop the learning capacity of the companies or firms (De Vries & Brall, 2008). In this regard, they suggest a micro training method, which consists of parts (15

minutes) like such as start, exercises, and discussions (De Vries & Brall, 2008). They explain that "Micro training" is related to organizational framework and is an effective method in terms of applying to the employees' daily working. As a concept, micro training has been developed in the framework of the Leonardo da Vinci program of the European Union. It is shown that this framework helps to collectively develop solutions for workplace-related learning with ample opportunities for information transfer. De Vries & Brall (2008) explain that micro training is related to the organizational framework and is an effective method in terms of applying to the employees' daily working.

Procedural Learning: It is a well-known fact that learning is related to "association, building ideas or skills step by step through active discovery and /or dialogue (e.g., social-constructive learning), and /or they learn by participating in (situated) practice (e.g., apprenticeship)" (p. 54) and the whole learning approaches focus on three main parameters: learner activity, the constructive alignment of activities with desired outcomes and feedback opportunities for consolidation (practice) and integration (Patru & Balaji, 2016). If the topic is related to ICT in pdMOOCs, the steps of the procedures can be provided to learners. By doing so, learners experience and try procedures to improve their competence. As Esfer & Cagiltay (2018) stated that conceptual learning should be minimized, and procedural learning should be maximized in digitalized workplace learning.

PBL: This is a learner-centered pedagogy developed by Barrows and Tamblyn in 1960. Upholding lifelong learning and self-motivated learning are some of the most remarkable features of this approach. Problem Based Learning (PBL) PBL can be seen as a learning process, which uses determined issues/cases within a scenario for gaining deep understanding (Wood, 2003).

CBL: With the motivation of searching for new types of teaching, learning, or assessment, the focus seems to be on "Context-based learning" for e-learning; since it is estimated that examples and cases will be linked to learners' working context (Sharples

et al., 2015). On-the-job examples, goal-directed activities, and self-contained units can be highlights of the pdMOOCs (Cagiltay, Esfer & Celik, 2020).

Authentic learning: This learning approach leads learners to research and construct information by solving real-world problems, as Donovan, Bransford, and Pellegrino (1999) stated. Authentic learning is also closely related to project-based learning regarding several issues like starting with a problem or task and creating a conclusion or solution.

2.5 ID process of MOOCs

After examining the pros and cons related to MOOCs, it is obvious that all dynamics are also related to the design process of MOOCs. Because many MOOC problems or contributions may be due to instructional designers, their decisions, experiences, beliefs, etc., and need to know the appropriate applications, approaches, ID elements, and how they choose them. As an example, the learners' motivations and goals may be quite different (Milligan & Littlejohn, 2017); it is a big challenge to design a MOOC for participants who have different goals and motivations. Moreover, there can be both internal motivational factors such as curiosity and personal interests and external factors such as professional development and taking advantage of university reputations, etc., in MOOC users (Wu & Chen, 2017). Therefore, while choosing and implementing the right motivators for the target group, instructional designers should analyze and try different strategies in order to provide sufficiency and efficiency. Although the ID process of MOOCs is similar to any kind of online courses (Video, audio, screen recording, mixing, editing, post-processing, etc.), still it should be noted that there can be different touches based on MOOCs' open and massive structure (Bali, 2014; Drake et al., 2015). Basically, the ID of MOOCs includes three-part like preparing content, activities, and assessments in terms of developing content for an SME / instructor (Drake et al., 2015). According to Patru and Balaji (2016), there are three scenario modes of MOOC development:

- **industrial scenario** (e.g., Coursera): Portal have a development and delivery mission, while the academic staff is responsible for design and implementation
- **centralized scenario** (e.g., FUN): Portal has a development and delivery mission, while the academic staff is responsible for design and implementation
- **collaborative-decentralized scenario** (e.g., OpenupEd): There are many partners who have their own MOOC platforms. Open license usage is crucial.

Moreover, “MOOCs are typically designed so that they can run with minimal academic support during the operational phase” (Patru and Balaji, 2016; p. 52), but the ID process of them can differ based on the MOOC types. For instance, generally, xMOOCs have a video scenario writing process before the production phase (Patru and Balaji, 2016), and using basic design principles for online education is suggested (Bates, 2015). However, designing a cMOOC has more complex and iterative design cycles since the learners can add and enrich the courses (Patru and Balaji, 2016).

Due to the pedagogical approaches’ important role in MOOC design (Alario-Hoyos et al. 2014), instructional designers should pay more attention to pedagogy in the ID process (Guàrdia, Maina, & Sangrà, 2013). While it is possible to come across quite different studies in the literature on the MOOC phenomenon, the number of studies on the process design and dynamics of MOOCs in teaching design is very low. In other words, while we don't know much about what is going on in the kitchen, there are many opinions about products like foods and drinks, etc. According to Zhu, Sari & Lee’s (2018) study findings, most of the MOOC studies were student-focused and had quantitative research methods, and a minority of them have examined the ID process from the instructors’ perspectives (Margaryan et al., 2015; Watson et al., 2016). Also, some specific research methods can create difficulties in a deeper understanding of MOOC related issues (Veletsianos & Shepherdson, 2016). The instructional design of MOOCs that aims to support effective teaching can be more difficult (Wong, 2016) than the other open online learning environments. In the following parts, enablers and suggestions for an effective ID process and MOOCs are examined more detail.

2.5.1 Suggestions for effective ID process and effective MOOCs

Although it is believed that the main challenges to access to quality lifelong learning such as economics, location, entry requirements, success in completion, accessibility, language, digital literacy, culture, legal, and quality, etc. can be overcome by MOOCs (Mulder & Jansen, 2015), many of them remain while producing MOOCs. Because the instructional design of MOOCs that aims to support effective teaching is complicated (Wong 2016) based on similar and unique other challenges. Furthermore, as several dimensions of human learning conspicuously changed in time (Bonk, 2016), MOOC learners differentiate from other learners due to the nature of the learning environment (Liyanagunawardena, Parslow & Williams, 2014). Keeping these factors in mind, some key challenges encountered by MOOC designers, instructors, SMEs, and researchers pointed out in the previous part. In this part, the literature findings of overcoming the mentioned challenges and suggestions for a more effective ID process and creating more effective MOOCs are discussed.

Generally, the pedagogy in a MOOC includes four dimensions: Small video lectures, peer/ automatic /self-graded homework, forum posting, and quiz (Bali, 2014). This framework reflects a typical xMOOC, which presents a more didactic education model (Gamage et al., 2018). As the like design of any kind of educational/instructional initiatives has MOOC design also have iterative cycles (Patru & Balaji, 2016). For example, in the ADDIE model, there are analysis, design, development, implementation, and evaluation phases, which is a continuous cycle. The pace of the iteration cycle may be differentiated based on the context, but basically, MOOC design starts from the analysis phase and goes on continuously to the evaluation phase (Patru & Balaji, 2016). So, firstly, there are some initial steps like creating a team and analyzing the context, and legal, ethical, and institutional issues need to be carefully planned at the beginning of the ID Design process of MOOCs (Richter and Krishnamurthi 2014; Wong 2016; Sari, Bonk & Zhu, 2020). Secondly, providing guidance and training to instructors (SMEs) while they design their courses is crucial for technical support, like assigning a video production professional who supports them in the ID process (Richter & Krishnamurthi, 2014). *Because* carefully planned training of faculty and technical support can enable

and clarify many issues from the beginning (Patru& Balaji, 2016). Thirdly, as Alario-Hoyos et al. (2014) suggested, getting support from the stakeholders and getting advice about course design from several published journals and reports can achieve to handle some ID challenges. Fourthly, the collaboration of interdisciplinary teams from different institutions and countries is also a facilitator for MOOC development and delivery (Patru&Balaji, 2016).

Scagnoli (2012, p.1) emphasizes five elements for the ID of MOOCs: 1. “Novelty and Leverage for Previous Experience”, 2. “Input from diversity of sources”, 3. “Gauge for understanding and further thinking”, 4. “Motivation for engagement and community learning opportunities” and 5. “Planning for Legacy.” Scagnoli also highlights the difficulty to create a MOOC for all levels and diverse learning community. So examining these mentioned five elements can help an instructor or instructional designer for preparation for the challenges. Siemens (2012) also suggest nine steps about planning and running MOOCs easily: Topic, audience, Find someone to teach with, Determine content, Plan spaces of interaction, Plan interactions (live, async), Plan your continued presence, Learner creation (activities), Promote and share, Iterate and improve. (cited by Kopp & Lackner, 2014, p.7144). Jasnani (2013) highlights the need for a specific instructional design for MOOCs by stating MOOCs run on an LMS and a crowded learner community and so developed “Instructional Design Philosophy for MOOCs” in the study which suggests a MOOC should be “Integrated and Seamless”, 2. “Individualized and Active” and 3. “Immersive and Contextual” (Jasnani, 2013 as cited by Kopp & Lackner, 2014, p.7144).

Generally, after analysis and initial phase studies, instructional designers collaborate with the SMEs and examine the course material. This collaboration gives an outside perspective on the raw content or scenario writing process. Similarly, while instructional designers write the storyboards, SMEs, producers, and technical teams help instructional designers to get more clarified, understandable, and feasible courses. Many experts who have several professions in a project can give feedback about the presentation of the content and reflect their opinions if there is online learning or any kind of educational project. In this regard, several research studies recommend similar issues independent of

the context. For instance, as every course should do (Williams, Kear & Rosewell, 2012), MOOCs should also present the learning outcomes clearly and again as all online materials should do (Ubachs et al., 2012), MOOCs should include an adequate level of interactivity as they are designed. Another important suggestion, as Cagiltay (2001) pointed out, the focus should be on selecting the right instructional strategies rather than technological strategies while designing any kind of distance learning environment. Anutariya and Thongsuntia (2019) suggest that short and medium-length MOOCs (course time is less than 20 hours, and learner effort may be less than 5.5 hours per week) can achieve supporting and decrease dropout rates. Besides, applying generic Quality Assurance Management (QAM) systems to MOOCs (Patru & Balaji, 2016). From the design perspective, there are already well-known known e-learning design principles like personalization, pre-training, redundancy, contiguity, learner control, modality, practice, feedback, coherence, and multimedia (Clark & Mayer, 2008), which can be used for MOOCs since e-learning can be broadly defined as “instruction delivered via a digital device” (Clark & Mayer 2011, p. 8). Furthermore, Guardia et al. (2013) emphasize the importance of instructor presence by saying:

“Ensure teacher presence (Anderson, 2008) not only as a referent or expert in the field but through the course design. Teacher mediated presence should be tangible through a detailed study guide, a set of meaningful learning activities, a collection of interactive resources and supplementary recommendations on how to organize the social interaction. The learning scenario should be deployed to include descriptive learning tactics on how to navigate, organize, and participate in a new global learning scenario.” (p.5).

On the other hand, since there can be very heavy operational efforts, learners should not expect instructor presence as such as in a formal/paid online course (Patru & Balaji, 2016). Moreover, usually, their design does not need academic support during the operational phase (Patru & Balaji, 2016). Furthermore, MOOCs should remain open after the course ends (Major & Blackmon, 2016; Deng et al., 2019). It is suggested that all the course materials should still be available even after the course end date, and they should be open to reuse (Major & Blackmon, 2016). When enrollment, engagement, and retention strategies are examined, Guardia et al. (2013, p.3) suggested: “self-regulation, self-paced, and self-assessment together with peer support and interest groups formation”. In addition, some Malaysian and Indonesian MOOC instructors declared that orientation and recognition as important strategies in that regard (Sari, Bonk & Zhu,

2020). They use the following strategies *to* increase participant efforts (Sari, Bonk & Zhu, 2020, p. 152):

“providing welcoming lectures, laying out instructors’ expectations, designing a visual depicting the path to success in the course, explaining the prerequisite knowledge early on, posting examples of what students are expected to complete, providing personal email support, offering a video trailer, posting prior student testimonials”

In order to provide MOOC attraction strategy, which is critical in instructional design (Richter & Krishnamurthi 2014; Wong, 2016), there are other several dynamics and suggestions:

- creating learning communities (Bonk et al. 2018)
- adding quizzes to the MOOC (Bonk et al. 2018)
- determining the right assessment (Drake et al. 2015; Wong 2016)
- providing multiple options for MOOC content (Bonk et al. 2018)
- implementing correct instructional design (Terras & Ramsay, 2015)
- detailed planning for MOOC course design is a crucial dynamic for creating an effective learning environment (Margaryan et al., 2015).
- trying to development of instructors and learners’ ICT skills of both (Patru and Balaji, 2016)
- Studying for improvement of qualifications of SMEs / instructors/educators etc. qualifications (Patru and Balaji, 2016)
- Using some tools for language support like translators or automatic translation (Patru and Balaji, 2016)
- Pedagogy or platform design should be supported (Patru and Balaji, 2016)

If MOOC designs need to be more job-oriented or they produce for workplace learning, the researchers suggest some other unique strategies for the practitioners:

- Adaptive designs provide a better learning environment and experience due to their flexibility and individualized constructure (Egglofstein & Ifenthaler, 2017).
- If the learning environment is designed by the combination of formal and informal learning principles, then supporting self-regulated learning at the

workplace also matters (Ertmer & Newby, 1996; Lehmann et al. 2014 cited by Egglofstein & Ifenthaler, 2017).

- While company-based MOOCs have some fixed reading materials, some of the independently offered MOOCs offer a less content-centered model (Blackmon & Major, 2017).
- Problem-centered assessments can be useful in terms of improving mental modes, which are able to connect with learners' own business context (Egglofstein & Ifenthaler, 2017).
- In MOOCs for digital workplace learning, assessments should be directly linked to job skills, which they need in real life, and the measurements should go beyond the multiple-choice questions (Egglofstein & Ifenthaler, 2017).
- Clark and Mayer (2011) provide e-learning principles to teach job tasks (See Table 2.6), but it should be noted that using these principles does not guarantee the improvement of quality in MOOCs (Oh, et al., 2019). Instead, they can

Table 2.6 *Guidelines for e-learning designed to teach job tasks (Clark & Mayer, 2011, p.406-407)*

	Guidelines for e-learning designed to teach job tasks	Corresponding e-learning principle
1	Transition from full worked examples to full practice assignments using fading	Worked Example Principle
2	Insert questions next to worked steps to promote self-explanations	Worked Example Principle
3	Add explanations to worked out steps in some situations	Worked Example Principle
4	Provide several diverse worked examples for far transfer skills	Worked Example Principle
5	Promote active comparisons of varied context worked examples	Worked Example Principle
6	Provide job relevant practice questions interspersed throughout and among the lessons	Practice Principle
7	For more critical skills and knowledge include more practice questions	Practice Principle
8	Mix practice types throughout lessons rather than grouping similar types together	Practice Principle
9	Provide explanatory feedback in text for correct and incorrect answers	Feedback Principle
10	Design spaces for feedback to be visible close to practice answers	Contiguity Principle
11	Avoid praise or negative comments in feedback that direct attention to the self rather than to the task	Feedback Principle

After reviewing some suggestions for the ID process, the design principles in the literature provide the opportunity to look at the process from a wider frame. Guardia et al. (2013, p.3) define ten design principles to create more attractive and diverse MOOCs:

- “1. Competence-based design approach: This is best achieved by including contextual variation, situating learning as part of the learning experience, through Simulations, Problem-Based, Case-Based and Project-Based Learning
2. Learner Empowerment: Self-regulation, self-paced, and self-assessment together with peer support and interest groups formation promote student empowerment and engagement”
3. Learning plan and clear orientations: A detailed description of tasks and subtasks and their estimated time. Suggest clues on how to cope with incidentals and plan for contingency (peer assistance, revision of personal goals and expectations, revision of personal planning and agenda).
4. Collaborative learning: “Design for collaborative learning including teamwork activities and discussion forums.”
5. Social networking: “Set up a space to foster social interaction and frequent contact between the learners”
6. Peer assistance: “The MOOC design should make explicit mention on the value of peer assistance through commenting and social appraisal”
7. Quality criteria for knowledge creation and generation: “Show how original content is appreciated, providing quality criteria for content development and content selection.”
8. Interest groups: “Recommend small group focused discussions. Give hints on how to better organize groups and subgroups according to their interest.”
9. Assessment and peer feedback: “Building trust on self and peer assessment can be addressed by elaborating objective and precise criteria and explanation. The design of rubrics, scales, and explanatory automatic answers are supportive tools for the learner.”
10. Media-technology-enhanced learning: “Offer learners a variety of rich-media for capturing their attention and retention. On the other direction, in order to improve learners’ quality productions and support engagement, provide guidance on how to determine best media choices according to each intention”

Kopp and Lackner’s (2014) checklist provides tips for effective MOOC design, which are compiled from many research findings. Their checklist includes seven main categories: “core requirements, structure, participant requirements, assignments, media design, communication, and resources.”

Core requirements: Firstly, all practitioners should have experience in MOOC environments before the plan and design phases. Because they should examine different MOOCs ID, sources, and infrastructure like in the best practices analysis studies. In the planning phase, it should not be forgotten that the target group is heterogeneous, and they have various different backgrounds. So examples, language, and context, expected working level, etc., may affect them differently. The MOOC portal should fit for the planned MOOCs’ technical features, and all components and features in the portal should be tested. Moreover, it should contain tutorials about using the platform, tools, and MOOC structure, etc.). Interaction type and level should be carefully selected based on the expected number of MOOC learners. Guidelines such as legal obligations of institutions and project rules should be considered. For instance, certification, the role of instructors, etc.

Structure: Instructional designers should decide whether they follow a curriculum or not. It is suggested that instructional organization should be implemented units based on the time table if there is. As Salmon (2007) suggested, the first unit or part of the MOOC should be designed as an introduction in terms of welcoming learners and socializing.

Participant requirements: To provide a faster orientation process for learners, they should be informed about course obligatory (if there are), earning a certificate, the average weekly workload, course objectives, and outcomes.

Assignments: The diversity of question types, measuring and evaluating at the end of each section, and providing feedback on wrong answers are very important. Also, all assignment types should have transparent achievement criteria and include different communication linkages like social media. Also, some supportive elements, like the glossary, terminology explanations, etc., should be provided.

Media design: Several different media, methods, and resources should be presented based on the course content. All resources should be licensed under Creative Commons (CC) licenses, as Rodriguez (2013) suggested.

Communication: There should be different channels like forums, chats, blogs, social media hashtags, etc. for communication and providing interaction

Resources: The presence of online tutors in MOOCs can increase social interaction. If there are also IT experts who design, manage, and provide sustainability of the MOOCs, then it is possible to do research, create new sources and test, update materials, etc.

From a broader perspective, Downes (2013) identified four success factors for MOOC design: autonomy, diversity, openness, interactivity. When Ubachs et al.'s (2012) study is examined, it is detected that there is a framework act like an umbrella to test MOOCs (Patru and Balaji, 2016). The E-xcellence framework is a quality instrument provided by the European Association of Distance Teaching Universities (EADTU). There are benchmarks like curriculum design, delivery issues, etc., which are broader than the ID

process of a MOOC (Ubachs et al., 2012). In the framework for the OpenupEd Quality label, which is comprised of both Ubachs et al.'s (2012) and Rosewell and Jansen's (2014) studies, there are two levels: institutional and course. For the institutional level, the following issues are the guide of the process (Patru and Balaji, 2016):

- **strategic management:** having an adequate learning strategy, open licensing, etc.
- **curriculum design:** personalization, flexibility, providing a balanced assessment strategy (including formative and summative), ensuring the success of learning goals)
- **course design:** the scope of the learning materials, the definition of learning outcomes, etc.
- **course delivery:** choice of online tools, educational models, etc.
- **staff support:** adequate support or resources like a help desk for technical problems and administrative support for non-technical issues.
- **student support:** stating clear information about the whole course-related issues like prerequisite knowledge, assessment types, time and workload, etc.

For the course level, the following criteria are given (Patru and Balaji, 2016, p.44):

“A clear statement of learning outcomes in terms of both knowledge and skills is provided. There is reasoned coherence between learning outcomes, course content, teaching and learning strategies (including the use of media), assessment methods. Course activities aid students in constructing their own learning and communicating it to others. The course content is relevant, accurate and current. Staff who write and deliver the course have the skills and experience to do so successfully. Course components have an open license and are correctly attributed. Reuse of material is supported by the appropriate choice of formats and standards. The course conforms to guidelines for layout, presentation and accessibility. The course contains sufficient interactivity (student-to content or student-to-student) to encourage active engagement. The course provides learners with regular feedback through self-assessment activities, tests and/or peer feedback. Learning outcomes are assessed using a balance of formative and summative assessment appropriate to the level of certification. Assessment is explicit, fair, valid and reliable. Measures appropriate to the level of certification are in place to counter impersonation and plagiarism. Course materials are reviewed, updated and improved using feedback from stakeholders.”

As seen, the E-xcellence framework contains more general information in the form of a summary of most research studies, and it provides a checklist for both organizational and instructional issues. More specifically, if MOOCs are designed for job-related content or workplace learning, then there are also unique design principles for online courses on a

business model derived from the combination of the related studies, and they can be suitable for MOOCs. The ID principles for the MOOCs are listed below (de Reuver et al., 2019, p.17-19):

- Simplify the material such that business owners with secondary education can comprehend it (Adapted from Yousef et al.2014).
- Limit the time to be spent on business model innovation course to 2-4 hours per week so that business owners with a limited amount of available time can still keep up with the course (Adapted from Moon et al. 2005).
- Provide inspiring examples and intuitive tooling to make the assignments more relatable to the own practical context of business owners (Adapted from Margaryen et al. 2015; Yousef et al. 2014).
- Use video and images rather than text in order to ensure the understandability of the content for business owners with secondary education (Adapted from Guardia et al. 2013)
- Have the learner apply the tools directly on his/her own business in order to provide immediate value and relevance (Adapted from Margaryen et al. 2015; Moon et al. 2005)
- Facilitate collaborative learning and sharing of best practices through forum discussions and peer reviews in order to promote learning amongst the business owners (Adapted from Guardia et al. 2013; Yousef et al. 2014, Margaryen et al. 2015).

These principles basically reflect the importance of simplifying the instructional materials which employers can easily understand; providing additional materials depending on the desire of the more advanced level learners; limiting the duration of lessons to 2-4 hours a week, having more flexible deadlines for assignments, projects, etc., preferencing of inspiring work examples suitable for the learning context of assignment samples; preferring audiovisual materials rather than texts materials; presenting of applications that learners can benefit immediately about their own business and supporting forums and discussions. When universal ID principles of universal instructional design created by Connell et al. (1997) examined, like in MOOCs, the focus

seems to be meeting the learning needs of many people from different backgrounds and providing equal access. These seven universal ID principles are listed following (as cited by Meyer, Gaskill & Vu, 2015, p. 66):

“1. Equitable use. The design is useful and marketable to people with diverse abilities. 2. Flexibility in use. The design accommodates a wide range of individual preferences and abilities. 3. Simple and intuitive use. Use of the design is easy to understand, regardless of the user’s experience, knowledge, language skills, or current concentration level. 4. Perceptible information. The design communicates necessary information effectively to the user, regardless of ambient conditions or the user’s sensory abilities. 5. Tolerance for error. The design minimizes hazards and the adverse consequences of accidental or unintended actions. 6. Low physical effort. The design can be used efficiently, comfortably, and with a minimum of fatigue. 7. Size and space for approach and use. Appropriate size and space are provided for approach, reach, manipulation, and use regardless of the user’s body size, posture, or mobility.”

After, Scott, McGuire, & Shaw (2003, p. 375-376) added two more principles to this Universal Design principles: A community of learners and instructional climate. It can be seen in the last version of the principle list, definitions, and examples in *Table 2.7*.

Table 2.7 The nine principles of Universal Design for Instruction (Scott, McGuire, & Shaw, 2003, p. 375-376)

Principles	Examples
Principle 1: Equitable use: Instruction is designed to be useful to and accessible by people with diverse abilities. Provide the same means of use for all students; identical whenever possible, equivalent when not.	Example 1: Provision of class notes online. Comprehensive notes can be accessed in the same manner by all students, regardless of hearing ability, English proficiency, learning or attention disorders, or note-taking skill level. In an electronic format, students can utilize whatever individual assistive technology is needed to read, hear, or study the class notes.
Principle 2: Flexibility in use: Instruction is designed to accommodate a wide range of individual abilities. Provide choice in methods of use.	Example 2: Use of varied instructional methods (lecture with a visual outline, group activities, use of stories, or web board-based discussions) to provide different ways of learning and experiencing knowledge.
Principle 3: Simple and intuitive: Instruction is designed in a straightforward and predictable manner, regardless of the student’s experience, knowledge, language skills, or current concentration level. Eliminate unnecessary complexity.	Example 3: Provision of a grading rubric that clearly lays out expectations for exam performance, papers, or projects; a syllabus with comprehensive and accurate information; or a handbook guiding students through difficult homework assignments.
Principle 4: Perceptible information: Instruction is designed so that necessary information is communicated effectively to the student, regardless of ambient conditions or the student’s sensory abilities.	Example 4: Selection of textbooks, reading material, and other instructional supports in digital format or online so students with diverse needs (e.g., vision, learning, attention, English as a Second Language) can access materials through traditional hard copy or with the use of various technological supports (e.g., screen reader, text enlarger, online dictionary).
Principle 5: Tolerance for error: Instruction anticipates variation in individual student learning pace and prerequisite skills	Example 5: Structuring a long-term course project so that students have the option of turning in individual project components separately for constructive feedback and for integration into the final product; provision of online “practice” exercises that supplement classroom instruction

Table 2.7 *The nine principles of Universal Design for Instruction* (Scott, McGuire, & Shaw, 2003, p. 375-376) (continued)

Principles	Examples
Principle 6: Low physical effort: Instruction is designed to minimize nonessential physical effort in order to allow maximum attention to learning. Note: This principle does not apply when physical effort is integral to essential requirements of a course	Example 6: Allowing students to use a word processor for writing and editing papers or essay exams. This facilitates editing of the document without the additional physical exertion of rewriting portions of text (helpful for students with fine motor or handwriting difficulties or extreme organization weaknesses, and provides options for those who are more adept and comfortable composing on the computer).
Principle 7: Size and space for approach and use: Instruction is designed with consideration for appropriate size and space for approach, reach, manipulations, and use regardless of a student's body size, posture, mobility, and communication needs.	Example 7: In small class settings, use of a circular seating arrangement to allow students to see and face speakers during discussion—important for students with attention deficit disorder or who are deaf or hard of hearing
Principle 8: A community of learners: The instructional environment promotes interaction and communication among students and between students and faculty.	Example 8: Fostering communication among students in and out of class by structuring study groups, discussion groups, e-mail lists, or chat rooms; making a personal connection with students and incorporating motivational strategies to encourage student performance through learning students' names or individually acknowledging excellent performance.
Principle 9: Instructional climate: Instruction is designed to be welcoming and inclusive. High expectations are espoused for all students.	Example 9: A statement in the class syllabus affirming the need for class members to respect diversity in order to establish the expectation of tolerance as well as encourage students to discuss any special learning needs with the instructor; highlight diverse thinkers who have made significant contributions to the field or share innovative approaches developed by students in the class

2.5.2 The necessity of MOOC ID process-related research studies

Although well-designed MOOCs have the potential for alternative training for working people (Rafiq et al., 2019), still current ID principles in MOOCs are not sufficient (Meyer, Gaskill & Vu, 2015), or many MOOCs may be designed without any support from experienced designers (Brouns et al., 2014). Also, the majority of MOOC research studies do not indicate ID process perspective (Brouns et al. 2014; Margaryan et al. 2015 as cited by Watson et al., 2016) whereas, especially ID of a MOOC has unique challenges like considering how to engage massive numbers of diverse learners (Adair et al. 2014; Watson et al., 2016). So, it is difficult to find MOOC research studies that suggest the ID model gives guidance to instructional designers and instructors (Gayoung et al., 2016). Also, Rafiq et al.'s (2019) study emphasizes providing comprehensive course contents, combining the ID models, and suggests future studies should examine the ID process of MOOCs for workplace learning. In connection with these arguments, there

are still many hidden issues related to the ID process of MOOCs (Cagiltay, Esfer & Celik, 2020). Therefore, the ID quality of MOOCs is questionable (Margaryan, Bianco, & Littlejohn, 2015; Yousef, Chatti, Schroeder, & Wosnitza, 2014). and quality of MOOC design should be investigated in more detail (Yousef, Chatti, Schroeder, & Wosnitza, 2014).

2.6 Summary of the chapter

This chapter primarily focused on two main issues: 1. MOOC types, their advantages, limitations, challenges, ID issues, and suggestions for effective MOOC ID process, and 2. pdMOOCs, analysis studies, and the Instructional Approach of pdMOOCs. During the project lifetime, there was a tendency to be able to create effective MOOCs in a short time and limited budget based on the literature research findings, analysis studies, and experiences of the practitioners. This tendency should be regarded as a starting point because the project framework allowed the format and redesign of the process. So, the practitioners and the researcher used more “how” questions than “what” questions to create an ID model and suggestions for guidance of similar practical situations, as Reigeluth & Frick (1999) suggested for formative research studies.

pdMOOCs were designed to help individuals who want to develop themselves to increase their job competencies and also employability by gaining ICT based work-related skills in an EU Project context. Moreover, the results of all the analysis studies also contributed to the project implementation process and creating a successful pdMOOC portal. However, there were many other topics that should be extensively discussed since the need analysis studies were not sufficient for all the answers to the questions raised during the implementation phase. For example, it is commonly suggested that employers/employees should be able to see the benefits of the MOOC portal and to share their experiences with others, allowing the portal to generate awareness. On the other side, the best practices analysis study also reshaped the design and development process, but the project team has realized that many decisions are affected by cultural issues. Moreover, after the need analysis survey, the project team has decided to add some MOOC topics in addition to the need analysis survey results because SWOT analysis studies, best practices analysis study, and survey results were

interpreted together, and the project team was faced with some findings which led the Project team to think differently. Since the most critical part of the project was the development of 100 pdMOOCs of desired quality for the Project team, it was crucial to complete the need analysis studies and design parts with helpful feedback. The project team found that Gagne's nine steps of instruction's, Merrill's five learning design principles, micro training, Context-Based Learning (CBL), Problem Based Learning (PBL), authentic learning, informal learning, and procedural learning principles can address critical needs for lifelong learners in workplace settings.



CHAPTER 3

METHODOLOGY

This chapter addresses the methodological foundation and framework of the study. Firstly, in order to clarify the selected methodology, the purpose (Section 3.1), the research questions (Section 3.2) the research design (Section 3.3) are presented. Next, the context, the case, and process of the study are explained in Section 3.4. Then Section 3.5 provides data collection, data analysis procedures, validity, and reliability issues are discussed in Section 3.6. Also, the pdMOOC creation process is presented for the basis of implementations to illumine the whole cycles of study. The assumptions of the study are stated in Section 3.7, and the researcher's role is explained in Section 3.8.

3.1 Purpose of the Study

The purpose of the study is to explore the dynamics of the instructional design (ID) process (analysis, design, development, and initial testing) of pdMOOCs. Examining this process with the help of related documents, perspectives of practitioners, and observation notes can be helpful for a holistic approach to ID and the project processes. Having a holistic picture of the ID process makes it easier to identify the characteristics of pdMOOCs and to create ID principles. Therefore, the overarching question of this study is how an effective and efficient instructional design theory for pdMOOCs can be developed. By observing a real-life ID Project case, it is possible to reflect the inner and more in-depth look at pdMOOC creation since the focus is on the design process rather than the outcomes. Parallel to this basis, the nature of the research questions is compatible with the qualitative study. So qualitative research method dominated this study.

3.2 Research Questions

In the study, the following research questions were investigated:

1. What are the factors influencing the ID process of pdMOOCs? How?
2. What are the suggestions for an effective and efficient ID process of pdMOOCs?

3.3 Research Design

To explore and to explain the unknown, scientific research methodologies are guides to help increasing objectivity and trustworthiness. As Fraenkel and Wallen (2000) claim, research studies provide researchers to gain accurate and reliable information from the environment. Specifically, qualitative research studies generally describe and reflect real-life experiences. Qualitative research is defined as Cresswell (2009) as "a means for exploring and understanding the meaning individuals or groups ascribe to a special or human problem" (p.4). Also, Reigeluth and Frick (1999) stated that traditional quantitative research methods are not particularly useful for developing ID theory or model in the early stages of instructional design. Instead, using formative assessment and case study methods can be useful for developing formative research methods. So, in order to investigate these research questions, In Vivo Naturalistic Case for a new theory as a formative research type is conducted. The following parts include detailed information related to the question of "why this research design has been chosen?"

3.3.1 Formative Research

As Reigeluth and Frick (1999) defined, formative research is a specific methodology for creating and improving design theories to be useful to educators. This method resembles developmental research and action research in terms of their primary goal, which is to develop a design theory by providing a detailed guideline for the instructional design process. At this point, two main questions are raised: 1. How can formative research differentiate from all other research methodologies? 2. How can formative research be useful for instructional design theories? The answers are presented in the following paragraphs.

According to the developers of the formative research study, this methodology originated from the need for new solutions for instructional practices and processes and a lack of efficiency in all other research methodologies in terms of guiding the ID field (Reigeluth & Frick, 1999). So, the ultimate goal can be developing or testing an ID theory/model as the education field needs to have more design-oriented theories. It is possible to say that formative research has been created as a harmony of action research and developmental research to improve an instructional design theory. In the 1990s, different academicians suggest a similar approach to the field. For instance, Greeno, Collins, and Resnick (1996) proposed *design experiments* by referring to the collaboration of people in the process of analysis, design, and implementation (as cited in Reigeluth & Frick, 1999). As it can be understood from design experiments, there is an emphasis on practice, the process of instructional design, and people –researchers, teachers, designers, practitioners, etc. - who are involved in this process. Also, according to Richey and Nelson (1996), constructivism has drawn attention to developmental topics. Then the emphasis is on the development process, designer decision-making, knowledge acquisition tools, and the use of development tools.

After these mentioned remarks, "how" questions become more important than "what" and creating a design theory is a need for guidance of practical situations (Reigeluth & Frick, 1999). While they are explaining the Formative research, they highlighted the three important criteria: *Effectiveness*, *Efficiency*, and *Appeal* to evaluate the research studies which intend to present generalizable design knowledge. Therefore, it is suggested that these criteria should show clearly, and testing or creating a theory can not be based on just one trial. On the other side, when analyzing the formative research, the term "formative evaluation" may illuminate the road. As commonly known, there are some essential questions like "What is working? What needs to be improved? How can it be improved?" to ask in this evaluation methodology (Worthen & Sanders, 1987, p.36 as cited in Reigeluth & Frick, 1999). Similar to these questions, formative research's guiding questions can be, "Which methods do not work well? Which methods work well? What improvements can be made to the theory?" These types of questions are corresponding to this study's research questions. Besides, this methodology reveals the

strengths and weaknesses of the design process created and enables necessary improvements to be made (Reigeluth & Frick, 1999).

3.3.2 Type of Formative Research

Formative Research methodology can be followed in three different types due to the context (Reigeluth & Frick, 1999): If the researcher wants to apply a design theory for an application intentionally, this situation represents a "designed case". Or the researcher does formative evaluation during the application; it stands for "in vivo naturalistic case". On the other hand, when the goal is a formative evaluation after the application, this type of Formative research is called "post facto naturalistic case". Therefore, the researcher's intention and observation time create differences in the Formative research methodology. Besides, these three types vary depending on the main aim of the study. The researcher may want to develop a design theory or improve an existing theory, so these two aims change the research process as Reigeluth and Frick (1999) discriminate. All kinds of formative research studies are given in *Table 3.1*.

Table 3.1 *Kinds of Formative Research Studies (Reigeluth & Frick, 1999, p.638)*

	For an Existing Theory	For a New Theory
Designed Case	Designed case for an existing theory	Designed case for a new theory
In Vivo Naturalistic Case	In Vivo Naturalistic Case for an existing theory	In Vivo Naturalistic Case for a new theory
Post Facto Naturalistic Case	Post Facto Naturalistic Case for an existing theory	Post Facto Naturalistic Case for a new theory

3.3.2.1 In Vivo Naturalistic Case for a New Theory

The relation between theory and practice is close and dynamic. So, to find an effective solution to a real-world problem, there is a need for interaction between practitioners and academicians. *In Vivo Naturalistic Case for a new theory* approach is the best fit for the current study because of the following reasons:

- The aim is not to apply a design theory for an application intentionally in this study, so the linkage with the designed case has been broken.

- The essential difference between post facto and in vivo studies is the observation time of the researcher. The synchronous observation is not possible in the post facto naturalistic case study since it is related to the process after the implementation and the researcher's intention. So, this study is an "In Vivo Naturalistic Case study" because formative evaluation continues through the application process.
 - More generally, this study can be classified *naturalistic case* since the researcher will not manipulate the investigation. For this feature, the researcher selects a case which is not specifically designed according to the theory. However, the same or similar goals and contexts with different theories can be used. So, the case which will be examined in this study takes advantage of adult learning, procedural learning, and informal learning, etc. However, no specific theory was intentionally instantiated.
 - As another aspect, the researcher "analyze the instance to see in what ways it is consistent with the theory, what guidelines it fails to implement, and valuable implements it has that are not present in the theory" as in naturalistic cases (Reigeluth & Frick, 1999, p.637).
 - In addition to this aspect, the researcher "formatively evaluates that instance to identify how each consistent element might be improved, whether each absent element might represent an improvement in the instance, and whether removing the elements unique to the instance might be detrimental" (p. 637) in naturalistic cases (Reigeluth & Frick, 1999).
1. The suggested process for in vivo naturalistic studies by Reigeluth and Frick (1999) includes the steps that are compatible with the current study's nature (selecting a case, collecting and analyzing formative data on the case, and developing tentative theory).

Beyond these reasons, presenting the current study's relation with design-based research, developmental research, and case study can be easier to understand why formative research is more applicable to the current study and how the other ones are connected with the basis of the study.

Relation with the Design-Based Research: Although there are many different concepts used with the same meaning; *design-based research* can be preferred as Van den Akker, Gravemeijer, McKenney, and Nieveen (2006) state that it is "a common label for a *family* of the related research approaches with internal variations in aims and characteristics" (p. 4). To exemplify, educational design-based research, developmental research, and design experiments, etc., may be used interchangeably by ignoring some nuances among them or with the thought of all of them have the same basic framework to solve a research problem. In this study, the formative research method and selected type of it have lots of similarities with the design-based research's characteristic features. For example, several cycles can be reshaped with the revision requests and feedbacks and also improvements that could divide design phases.

Relation with the Developmental Research: As mentioned earlier, Reigeluth and Frick (1999) proposed formative research as a combination of *action research* and *developmental research*. When we look at the definition of a developmental research study which is stated by Seels and Richey in 1994; it is possible to detect the emphasis is on the instructional design: "the systematic study of designing, developing and evaluating instructional programs, processes, and products that must meet the criteria of internal consistency and effectiveness" (p.127). Therefore, development research is also related to instructional design, development, or evaluation studies and examining this process simultaneously. In these studies, the ultimate goal is to reduce uncertainty while making decisions about the process. So the developmental research is systematic and, at the same time, flexible methodology since its roots stand up to collaboration among researchers and practitioners in real-world settings (Wang & Hannafin, 2005). It leads to "contextually-sensitive design principles and theories" through iterative analysis, design, development, and implementation (Wang & Hannafin, 2005); by giving ideas for the quality of the products or elements and trying to implement design principles. Van den Akker (1999) states that developmental research studies can provide scientific and practical contributions. To sum up, developmental research methodology can contribute to the ID field knowledge base due to the power of presenting understandings of the ID models, methods, principles, or the lessons learned from a project (Richey & Nelson,

1996)like formative research. Besides, both of these methodologies deal with the instructional design problems, and they are intended to make improvements on theories and practices as they can be understood from the explanations of the pilot courses' explanations.

Relation with the Case Study: Since the selected research methodology is directly related to the Case study paradigm, reexamining the case study characteristic will help this study's methodology with more common explanations. Firstly, it can be said that the underlying logic of Formative research is related to the Case study approach. As explained by Yin (1984), the design process can be identified as a single holistic case. Secondly, the nature of Formative research is compatible with exploratory studies. Especially the emphasis of "no clear, single set of outcomes" stated by Yin (1984, p.25) can lead us to ask how and why questions similarly in Formative research. When we focus on the Case study definitions, it will be possible some certain similarities between formative and case research studies. Stake (1981) explains the Case study process with unknown variables and links which have the possibility of emerging from the case. Yin (1994) defined the case study, "...is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (p.13). Similarly, Flyvbjerg (2006) states that "the Case study is a necessary and sufficient method for certain important research tasks in the social sciences, and it is a method that holds up well when compared to other methods in the gamut of social science research methodology" (p.402). These definitions and the following reasons support the idea that this study includes case study characteristics.

First of all, this study deals with a real-life problem whose boundaries are clear. On the other hand, boundaries between phenomenon and context are not clear in this study. This means the current study is an example of the case study, as Yin (1994) defines. The researcher wants to highlight the dynamics of the design, development, and evaluation process for an e-learning environment that is created for employees and employers in SMEs. Another reason, the study focuses on a relatively long time for collecting data. The researcher gathered data from various sources, which can be surveys, statistics, documents, observation, and interviews, etc. Another reason can be the style of

presenting findings descriptively. The researcher intended to illustrate one guideline, but there are many related factors. Like the last reason, the researcher tried to illuminate the context of the study. As can be understood, the Formative research methodology follows the case study approach and while examining the research questions, epistemology, and ontology of this study.

3.4 Research Context

To highlight the nature of the current study, the researcher observed the whole project process, followed tasks, people, events, risks, problems, solutions, etc., and examined the procedures, documents, improvements, etc., related to this Project. So, the following subheadings are examined sequentially in this section:

- 1. The Case: The 100 pdMOOC Project:** General information about the project, motivation, and project activities, etc.
- 2. Project Practitioners:** General information about the responsible body of the project and the people who take place in the ID process actively.
- 3. The Project Process:** General information about the project's time plan, activities, 100 pdMOOCs ID process, etc.

3.4.1 The Case: 100 pdMOOC Project

This study focuses on an EU funded under Instrument for Pre-accession Assistance (IPA) Human Resources Development Component Project that proposed to build up a MOOC platform, which will support the adaptability of adults to the new social and economic structures by investing more in human capital via ICT services and tools in Turkey. The Project was aimed to increase the adaptability of employers and employees of SMEs via ICT services and tools. As can be understood from its name, this project was mainly designed to help employers, employees, and individuals who want to develop themselves for professional development and to increase employability by gaining ICT based skills. As the outcomes of the project, 100 MOOCs were developed in a free, accessible, and user-friendly designed portal with advanced tools and able to host new MOOCs.

The official commencement date of the “Capacity Development of Employees and Employers via Information and Communication Technologies (ICT)” Project has been stated as the 17th of December 2015, and it was completed in December 2017. The overall objective of the project is to increase the adaptability of employees and employers by investing more in human capital via ICT services and tools in a MOOC platform. The target group is employees and employers who want to improve their professional development in Turkey. In the long term, social partners, continuous education centers of universities, and Non-Government Organizations (NGOs) started to get benefit from the content and methods to be developed throughout the project.

To summarize, the focus was on increasing adaptability in workplace requirements; reducing the overall cost of the learning process, on-demand access, flexible and effective learning, meeting the expectations rapidly, adjusting individual and collaborative learning, etc. issues which refer to online, lifelong, and informal learning steer to MOOCs for the project. All courses have been prepared in Turkish. The Beneficiary (METU) was the responsible institution for the overall implementation and management of the *Project*, and the researchers are the members of the Beneficiary. Moreover, the Operation team that covers the project director, training experts, communication experts, IT experts, all consortium members such as e-learning Company, IT Company, etc., has the primary responsibility for general operation. Also, the Contracting Authority, MoLLS, was responsible for tendering, contracting, administration, overall project supervision, review and approval of the reports, financial management, including accounting and payments of the project activities. The project has started in December 2015 and became fully functional by the end of 2017. In addition to the preparation of MOOCs, there were also many planned promotional activities such as conferences, meetings, workshops, TV and radio programs, an organization of a Hackathon, Technorun. Feedback was collected from the stakeholders to improve the project and to strengthen the prospects for the sustainability issues throughout the project.

3.4.1.1 The motivation of the project

The motivation of the Bilgeİş Project can be explained with many different arguments and needs. Firstly, for a country, work quality is an important dynamic since it has powerful effects on administrative performance (Chung, Lee & Liu, 2014). In parallel, the professional development of citizens is highly related to the community's development (Chung, Lee & Liu, 2014). Unfortunately, especially unemployment of young people is a global problem (Mourshed, Farrell & Barton, 2012), and it is not possible to claim that formal educational institutions like universities, high schools, etc. are not sufficient for meeting the job skill needs (Weise & Christensen, 2014). Whereas effective job training related to the job and workplace can increase the quality of human capital (Chung, Lee & Liu, 2014). Moreover, the main education is supporting employability and providing access to lifelong learning for European policies (Bienzle, 2008). On the other hand, generally, developing countries have lower-middle-income economies. Therefore, a minority of people can access higher education, or there is inequality of education, especially for women and individuals with disabilities (Patru&Balaji, 2016) and gaining specific skills to get a job or to do a job better are the most remarkable motivations for them (Christensen et al., 2013). As another dimension of this problem, sector-specific strategies are crucial in terms of skill development and human capital management since the current approaches are not satisfied (Patru & Balaji, 2016). Because most of the companies face with several learning needs, which are changeable and should be met rapidly and these kinds of needs may be neglected or deal with formal training (De Vries & Brall, 2008). While employers state the challenge of finding the right people for job qualifications, there is still a lack of a flexible, innovative learning approach (Patru & Balaji, 2016). So, a demand-led approach is a popular approach for meeting the needs of a part of society by designing MOOCs (Daniel, 2014). There are strong demands about the business world and industry in terms of skills and higher education, and MOOCs can provide job-oriented training, contribute to the achievement of sustainable development goals of nations (Patru& Balaji, 2016). On the other hand, face-to-face/formal learning environments for workers and managers can be disadvantaged because of time and money challenges (Rafiq et al., 2019).

Beyond the mentioned problems, technological improvements and economic globalization deeply affect all countries. These changes cause lots of different social activities and lead us to interrogate the situation while adapting them. Since it is a well-known fact that traditional formal courses are not sufficient to create long term effects (Hager, 2011), lifelong learning plays an essential role in terms of social integration and adaptation of professional qualifications for both individuals and organizations. At this point, online learning has gained many different roles, such as equality of opportunity supporter, a fast problem solver, a remarkable teacher, and a talkative classmate; especially, MOOCs are excellent for promoting lifelong learning. According to the Innovating Pedagogy Report (2015), which is published by The Open University, it is stated that the major innovation of the last three years delivering education at a massive scale (Sharples et al., 2015) and it takes MOOCs to the stage. Also, most of the other Innovation reports provided by the Open University (UK) in the past decade represent significant evidence of the impact of MOOC pedagogy on lifelong learning (Bozkurt, Keskin & De Waard, 2016). Even some people believe it is a “transformative revolution” (Bonvillian & Singer, 2013). By means of these environments, everyone can be a “learner-teacher” since the cons related to especially Information and Communication Technologies (ICT) based training are removed (Hamburg and Hall, 2008). Specifically, from the employers perspective, Wang (2016) identifies the advantages of using MOOCs like “easy to access resources; to improve their skills in their current lines of work; to enhance their credibility, and to better understand the operations of their existing workplace” (p. 242). Similarly, the Bilgeİş project aimed to help adults related to their workplace learning experiences. Today, especially working people need to have flexible learning environments in order to meet their training needs. “The emerging possibilities for promoting adaptability suggested by these findings motivate the researchers to study the *Bilgeİş Project*, which focuses on the learning needs of Turkish employee/employers.” Furthermore, when considering the learning needs, their causes and ties to society should not be forgotten. As mentioned earlier, in *Figure 3.1*, some of the reasons that were effective in the birth of pdMOOCs can be summarized as follows:

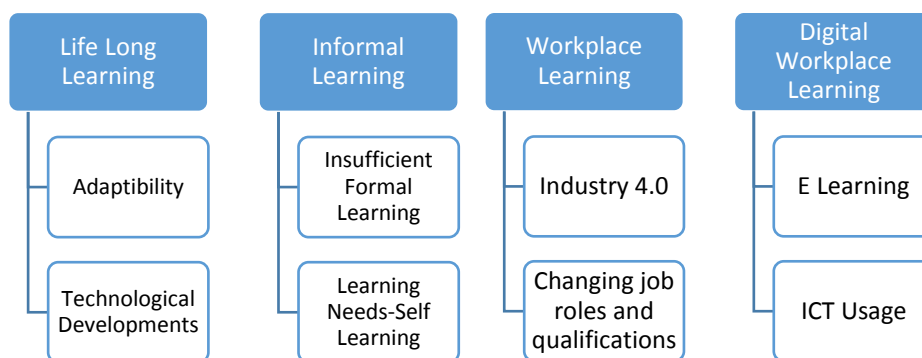


Figure 3.1. Reasons for learning demands and the background of the pdMOOCs
(Adapted from Figure 10.2 in Esfer & Cagiltay's (2018, p.169) study)

Since the project aimed to help adults related to their workplace learning experiences by providing free and informal training in Turkey, the project is mainly related to professional development and increasing adaptability towards employee and employers' learning needs, mainly related to ICT and partially soft skills. The target group is specifically staff and employers who work for Small and Medium Enterprises (SMEs). SME employees are expected to benefit from the MOOCs by increasing their adaptability and innovation potential to develop their managerial, personal, and vocational skills with the help of free and open courses. Although the focus has been declared as SMEs, people who do not work for SMEs, such as unemployed people, disabled people, students, can also reach and use the Bilgeİş pdMOOC portal as it is freely open to everyone. To sum up, the motivation formula of the Bilgeİş Project (Adapted from Esfer & Cagiltay's (2018, p.168) study- Figure 10.1) can be like as follows:

Need for informal Learning + Need of ICT Usage + Need for Workplace Learning + Need for Qualified MOOCs = Informal pdMOOCs for Qualified Digitalized Workplace Learning

3.4.1.2 Main Project Activities

There were main six comprehensive goals within the scope of the project, and they are previously decided in technical documents and expected to occur under the beneficiary (METU) supervision (Esfer & Cagiltay, 2018, p.172):

- “Preparing 100 free, widely-open and easily reachable MOOCs and a MOOC Portal,
- Developing an innovative method for MOOCs regarding the needs of the target group,
- Increasing skills and adaptability of the SMEs through MOOCs related to ICT usage and soft skills,
- Increasing awareness of the importance of ICT usage in work organization/ in supporting workplace learning,
- Enhancing university-business and university-society interaction with different stakeholders
- Promoting human capital investments through supporting the sustainability of the training participants’ professional development and publicizing the outcomes of the project to ensure sustainable utilization.”

3.4.1.3 The contribution of the Bilgeİş Project

From a more general perspective, the Bilgeİş Project aims at addressing the main challenges Turkey faces in the fields of employment, education, and training, as well as social inclusion. So, the project aimed to contribute to the transition to a knowledge-based economy by contributing to the development of human capital with the tools and methods of ICT in sectors. In this regard, a free and open pdMOOC platform in Turkish, in which anyone interested in learning, can be engaged both online and interactively to develop/increase their skills and abilities. Although the project provided training to a certain number of employees and employers officially, the overall objective was to reach everybody who wants to develop their knowledge via ICT. Today, pdMOOCs are very popular in Turkey (Cagiltay, Esfer & Celik, 2020) since the enrolled participants are more than 220.000 and 150.000 certificates.

3.4.1.4 The pdMOOC Portal

The project runs on a MOOC Portal (<http://bilgeis.net>), which aims to support the adaptability of employees and employers to the new social and economic structures. It aims to increase the adaptability of target groups by investing more in human capital via ICT services and tools. Anyone who has Internet access and a user account on bilgeis.net can reach the pdMOOCs and use any of the educational materials. All courses and components of the portal are accessible via desktop/laptop and mobile devices. The portal can enable file sharing, assignments, and grading. Online tutors who are real people can follow the learners, give feedbacks, can communicate via e-mail, and evaluate their assignments three days after submission time. Forum, messaging, badge, and peer assessment features were not active on the portal consciously. The portal includes

various assessment tools, such as assignments, projects, and quizzes, which support different question types. Moreover, when the sustainability of the pdMOOC portal examined, one of the previous studies of the researcher can highlight the details as following:

“The pdMOOCs prepared within the scope of the aforementioned EU project were designed to be offered to users free of charge. However, the project had no official sustainability plan at that time. After the project finished, the pdMOOC portal lacked official funding. Fortunately, actions have been taken in regards to the sustainability of the pdMOOC portal, thereby allowing this important learning portal to survive for more than its initial year. More specifically, volunteers help maintain the portal’s status. Middle East Technical University staff and Operation Coordination Unit Members work voluntarily for the portal. Moreover, five undergraduate students are responsible for the portal’s help desk, and eight online tutors are responsible for evaluating the submitted assignments and projects to the portal.” (Cagiltay, Esfer & Celik, 2020, p.132).

For the sustainability of the project activities, CT plans to:

- managing and maintaining the bilgeis.net
- supporting online tutors’ and help desk members’ studies
- increasing the number of pdMOOCs by developing new courses
- revising the current pdMOOCs based on user preferences and updating their contents to catch the rapid pace of ICT
- updating the questions of the quizzes on the pdMOOCs
- disseminating the project outputs to target populations via social media, academic studies, and connections
- encouraging cooperation and collaboration among stakeholders such as universities, schools, enterprises, NGOs, chambers of commerce and industry, etc.
- contributing to the stakeholders’ related projects.
- for both course development and dissemination of the project outputs.
- searching for funding
- creating certification programs that can provide accredited certificates to document their qualifications.

Hence, to provide the 100pdMOOC project details, which is very important for this research study’s framework, can be summarized in the following *Table 3.2*.

Table 3.2 100pdMOOC Project

Title	Description
Project Info	<i>Contact Title:</i> Capacity Development of Employees and Employers via Information and Communication Technologies (ICT) <i>Reference Number:</i> EuropeAid/136645/IH/SER/TR <i>Contract Number:</i> TRH3.2METU/P-01 <i>Beneficiary Institution:</i> METU <i>Contracting Authority:</i> Ministry of Labour and Social Security / Directorate of the European Union and Financial Assistance <i>Country:</i> Turkey
Name	Bilgeİş (Bilişimle Gelişen İş Dünyası)
Problem	De Vries & Brall (2008) state that most of the companies face with several learning needs which are changeable and should be met rapidly. Especially for SMEs who want to develop or advance a skill but do not have time for formal education, it is difficult to learn effectively and independently from the time and location. Also, they might quickly review the sub-skills they are familiar with and spend more time on the new ones. On the other hand, one of the problems of the labor market is the gap between the competencies of employees and the requirements/expectations of employers in Turkey. Also, the under-preparedness for the work environment and skill-mismatch of new graduates was mentioned as the barriers for the participation of young individuals, aged 15-24, to the labor force. In addition, according to OECD reports, the rate of employment in the ICT sector in Turkey Turkey felt behind in terms of the rate of employment in other sectors, which utilize ICT for business when compared to other OECD countries. At this point, lifelong learning can be considered as a supportive mechanism that focuses on employability (Bienzle, 2008), while the development of human resources is still regarded as the responsibility of the higher education institutions.
Solution	To support the adaptability of employees and employers to this new social and economic structures and to increase the adaptability of employees and employers by investing more in human capital via ICT services and tools. Especially, as ICT skills mismatch can remain since the utilization of technology increase.
Ultimate Goal	The main purpose of this project was to increase the adaptability of Turkish employees and employers by investing more in human capital via ICT services and tools.
Goals	This project proposed to build up free and widely open 100 MOOCs. MOOCs were designed to help individuals who want to develop themselves to increase their job competencies and employability by gaining ICT based work-related skills. Developing an innovative method for online learning by the needs of employers and employees Increasing skills and adaptability of the SME through online training on ICT usage Increasing awareness of the importance of ICT usage in work organization Enhancing university-business interaction with different stakeholders Promoting human capital investments through supporting the sustainability of the training participants' professional development Publicizing outcomes of the operation for ensuring the sustainable utilization
Time	The project had a duration of 22 months (+2 months) 17.12.2015-10.12.2017
Budget	The project is funded under the IPA Human Resources Development Component. Service: 2.800.000 Euro Equipment: 600.000 Euro
Scope	100 MOOC based on technical and social skills
Target Group	The target group was specifically SMEs in Turkey, but everybody who knows Turkish can be the target group. Employees: Employees will benefit from the operation by increasing their adaptability and innovation potential with the help of free and open curriculum developed for their existing and future staff. Employees will be encouraged to participate in the training to develop their personal and vocational skills. They can develop their fields of expertise or can gain new skills. Employers: Employers who participate to the training will improve their business environment and work organization. Employers will be encouraged to participate in the training to develop their managerial and vocational skills for their business environment. Employers are also expected to promote Bilgeİş Project among their employees. It is expected to have 200 employers from at least 70 enterprises participated in online training. Finally, it is expected to have at least 1500 trainees from at least 300 different enterprises participated in online training. Others: Although there are people who are not in the target learners group who might be unemployed persons, disabled persons, people who are not working in SMEs, etc. , it can be

Table 3.2 100pdMOOC Project (continued)

Title	Description
Main Activities	important to gather information from them for the specific advantages or disadvantages of the learning portal.
	The users were provided with training through these online courses and software for increasing their job competencies.
	<i>Result 1: An innovative method for on-line learning was developed in accordance with the needs of employers and employees</i>
	1.1 Methods, requirements, recommendations for Open Course Ware (OCW) and Massively Online Open Courses (MOOC) in on-line training field were analyzed and reported in detail. A SWOT Meeting and Surveys were achieved. Project Opening took place at the morning session of the SWOT Meeting.
	1.1.1 Conducting best practices analysis of on-line training
	1.1.2 Organization of an Opening Conference and a focused meeting for performing SWOT Analysis
	1.1.3 Carrying out complementary survey with the employees and employers for identifying training demands
	1.1.4 Preparation of a Comprehensive Report on the outcomes of analysis of best practices and SWOT as well as complementary surveys
	<i>Result 2: Free, widely-open, easily reachable and innovative online courses and methods for learning software development were prepared.</i>
	2.1 Online free software learning platform (in Turkish) was prepared, software development curriculum, resources and tools were designed
The Results	2.1.1 Establishment of free online learning portal
	2.1.2 Design and development of pre-determined courses
	2.1.3 Design and development of balanced 90 courses
	<i>Result 3: Skills and adaptability of the employees and employers were increased through online trainings on ICT usage and actively-informed business environments were created through online trainings for the employers.</i>
	3.1 Enrollment of employees and employers to trainings, increasing the adaptability and commitment of the employees to the trainings in SMEs by providing indirect incentives to the employers and employees.
	3.1.1 Delivery of online training for employers
	3.1.2 Delivery of online training for employees
	3.1.3 Implementation of Incentive Programmes to employees and employers
	3.1.4 Conducting testing and certification process for the trainings
	<i>Result 4: Awareness on the importance of ICT usage in work organization is increased, university-business interaction with different stakeholders is enhanced for increasing R&D capacity of business community.</i>
	4.1 Awareness raising on the importance of ICT usage in work organization, enhancement of university-business interaction, promotion of the project, organization of publicity events and R&D Match-Making Days
	4.1.1 Conducting meetings and seminars with stakeholders in target provinces
	4.1.2 Signing protocol agreements with the stakeholders
	4.2 Establishment of Database
	4.3 Establishment of a Help-Line
	4.4 Promoting the Operation among target group
	4.4.1 Development and Maintenance of Operation Website
	4.4.2 Design and Development of Operation Identity Guideline
	4.4.3 Design and development of Leaflets and Booklets
	4.4.4 Design and development of E-newsletters
	4.4.5 Design and development of Posters
	4.4.6 Design and development of Banners and Flyers
	4.4.7 Design and development of Promotional Materials
	4.5 Establishment of Dialog and Interaction with Media/Social Media/Public Bodies
	4.5.1 Design and distribution of Press releases
	4.5.2 Design and dissemination of Press Packs
	4.5.3 Arrangement of TV and Radio Interviews
	4.5.4 Development of a Spot Film
	4.5.5 Opening and updating dedicated accounts on Social Media
	4.5.6 Organization of promotional activities

Table 3.2 100pdMOOC Project (continued)

Title	Description
	<i>Result 5: Human capital investments were promoted through supporting the sustainability of the training participants' career development.</i> 5.1 Promoting Human Capital Investments 5.1.1 Organization of a visit to a Hackathon in EU 5.1.2 Organization of Hackathon and Global Game Jam Days in Ankara Hackathon 5.1.3 Organization of Study Visits <i>Result 6: Human capital investments were promoted through supporting the sustainability of the training participants' career development.</i> 6.1 Completion of the Operation and publicity of the outputs and results achieved 6.1.1 Preparation of Interactive Operation Outputs DVD 6.1.2 Organization of Operation Closing Conference
Awareness Raising, Communication and Visibility Activities	Awareness-raising events were organized in 5 targeted provinces (Ankara, Istanbul, Izmir, Gaziantep, and Eskişehir). Conferences, meetings, and workshops were organized for publicizing the outcomes of the operation and getting feedback from the stakeholders to improve the content of the online platform and to strengthen the prospects for the sustainability of the Operation. 32 Stakeholder Meetings and 50 protocol, Five meetings with 200 participants, Five seminars with 525 participants, Five info days with 750 participants, Hackathon with 200 participants, Practical workshops with 200 participants, Experience sharing meetings with 200 participants Two Steering committee meetings with 100+ participants TechnoRun with 850 participants Printed Materials (posters, brochures, etc.) Radio ve TV programs, 50+ Billboards, One public film , 2 Study Visits (Open University-England, Hackathon- Holland)
Main Outputs	bilgeis.net pdMOOC Portal, 100pdMOOCs
Risks	Economic Crisis, Not getting enough attention , No participation
Sustainability	There was no clear sustainability plan within the project framework. Now, voluntarily studies are going on to keep the system afloat.
The Project Practitioners	Nearly 200 people were working in the 100 pdMOOC project including the organization team, SMEs, instructional designers, developers, etc.
The Awards	Turkish Project Management Vocational Institute Çetin Ceviz Awards 2019 Best Project Finalist TEGEP Social Contribution Development Project Award YÖK Excellence Awards in Community Service Category- (2. Project in METU)
The Publications	Articles: Türkiye’de Kitleli Açık Çevrimiçi Dersler (KAÇD) ve Türk Yükseköğretimi Bağlamında Bir Değerlendirme (in press). Book chapters: Esfer, S., & Cagiltay, K. (2018). Creating a MOOC portal for workplace learning. In Ifenthaler, G. (Ed.), <i>Digital Workplace Learning</i> (pp. 167-185). Cham: Springer, https://doi.org/10.1007/978-3-319-46215-8_10 Cagiltay, K., Esfer, S., & Celik, B. (2020). Insights into a nationwide pdMOOC portal: bilgeis.net of Turkey. In Zhang, K, Bonk, C. J., Reeves, T.C. & Reynolds, T.H. (Eds.), <i>MOOCs and Open Education in the Global South: Challenges, Successes, and Opportunities</i> (pp.130-139). New York, NY: Routledge, https://doi.org/10.4324/9780429398919 Conference papers: ICITs 2016 Malatya ,E –Learn 2016-USA, EDEN 2017-Sweden, TBD 2017 Ankara, ICITs 2017 Rize, ICITs 2018 İzmir, ICITs 2018 İzmir, E-Learn 2018-USA, ICITs 2019-Kırşehir, EJER 2019-Ankara Conference participation EdX 2017-London
Social Media	https://twitter.com/bilgeisnet https://www.youtube.com/bilgeis https://www.facebook.com/bilgeisproje/ https://www.instagram.com/Bilgeisnet/

3.4.2 Project Practitioners

Firstly, to introduce all groups in the project, the responsible body of the Bilgeİş Project (blue squares), the target group, and stakeholders are shown in *Figure 3.2*. The project practitioners are the beneficiary Institution, the technical assistance team, contracting authority, and delegation of the European to Turkey. Before getting to know project practitioners, the information about the stakeholders and the target group are presented below:

Target Group: Since the overall objective of the project is to increase the adaptability of employees and employers by investing more in human capital via ICT services and tools in a MOOC platform, the target group is employees and employers who want to improve their professional skills in Turkey. Therefore, although the target group is specifically SMEs in Turkey, everybody (unemployed persons, disabled persons, people who are not working in SMEs, etc.) can be the learners on bilgeis.net.

Stakeholders: The social partners are continuous education centers, universities, Non-Government Organizations (NGOs), chambers of commerce, etc.

In Bilgeİş Project, more than 200 people have actively worked for the 100pdMOOC creation process. It means there were hundreds of people who were only acting as the implementer of the project. The technical Assistance Team covers the project director, training experts, communication experts, IT experts, all consortium members such as e-learning Company, IT Company, etc. had the main responsibility for general operation. Also, the Contracting Authority and MoLLS were responsible for tendering, contracting, administration, overall project supervision, review, and approval of the reports, financial management, including accounting and payments of the project activities. So, these people are defined as “the project practitioners” (See Figure 3.2). The teams in project practitioners are 1. Project Management Team (PMT), 2. Coordination Team (CT), 3. Auditors and Project Specialists (APS), 4. Subject Matter Experts (SMEs), 5. Quality Assurance Team (QAT), 6. Storyboard Writer Team (SWT), and 7. Developers Team (DT).

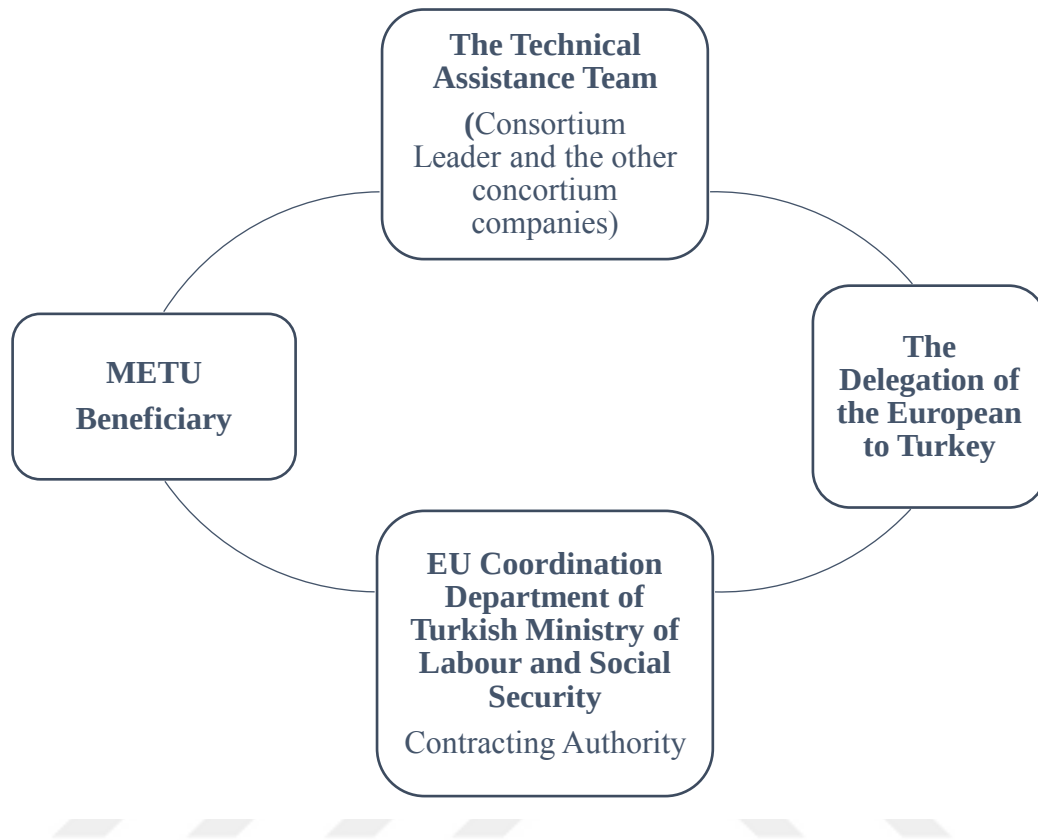


Figure 3.2. All groups in the project of Bilgeİş Project

More specifically, *Table 3.3* shows the roles and missions of Bilgeİş Project practitioners who are in the responsible body of the project.

Table 3.3 *Roles and missions on Bilgeİş Project Practitioners*

Teams who are in charge	Institution	Mission and Roles
Project Management Team (PMT)	Consortium Leader Company	They manage the whole budget and time management, communication, raising awareness, human resource management activities of the Project. Although they do not have an active role in the ID process, they are the people who make all the decisions that indirectly affect the process.
Coordination Team (CT)	Beneficiary University	METU is the responsible institution for the overall implementation and management of the Project; however, their primary mission in the Project is controlling, reviewing, revising, and finally approving the courses. The Beneficiary is the responsible institution for the overall implementation and management of the Bilgeİş Project. The Beneficiary institution has established a Coordination Team that supervises the implementation of the operation and comprises a sufficient number of staff having the appropriate profession and experience to provide effective supervision and control of the operation.
Auditors and Project Specialists (APS)	EUD and Molls	They are responsible for tendering, contracting, administration, overall project supervision, review, and approval of the reports, financial management, including accounting and payments of the project activities.
Subject Matter Experts (SMEs)	Independent Experts	They write raw contents with extra course materials like quizzes, dictionaries, etc.
Quality Assurance Team (QAT)	Non-Key Experts of Project	They are responsible for checking all the ID phases and all products in the ID process. Also, they conduct the quality assurance works of the ID process-related products and documents.
Storyboard Writer Team (SWT)	E-Learning Company and and the other outsourced Firms	They plan and create storyboards for pdMOOCs.
Developers Team (DT)	E-Learning Company and the other outsourced Firms	They produce all audiovisual materials and interactive elements and produce SCORM packages by writing codes.

3.4.3 The Project Process

It is helpful to examine *Table 3.4* that shows the Project's timeplan and the activities accomplished in the Project's duration. A more detailed version of the timetable of the Project is provided in *Appendix A*.

Table 3.4 *Timetable for the Bilgeİş Project*

Bilgeİş Project	Activities
1. month-17/12/2015	The inception phase started.
End of 4. month-17/04/2016	The pdMOOC portal was constructed.
End of the 6. month- 17/06/2016	Pilot pdMOOCs were available on the portal
End of 16. month-17/04/2017	All pdMOOCs were available on the portal
Final- 24. month-17/12/2017	The Project ended.

As seen in *Table 3.4*, there was a two-year process, and the development of the pilot pdMOOCs and others were important in the project process. However, the ID process of every pdMOOCs reflects a highly complex and gripping process. To simplify, *Figure 3.3* shows the ID process of a pdMOOC by emphasizing that feedback and revisions are present at every stage of the process. Also, *Figure 3.4* provides the phased structure of the ID process in more detail.

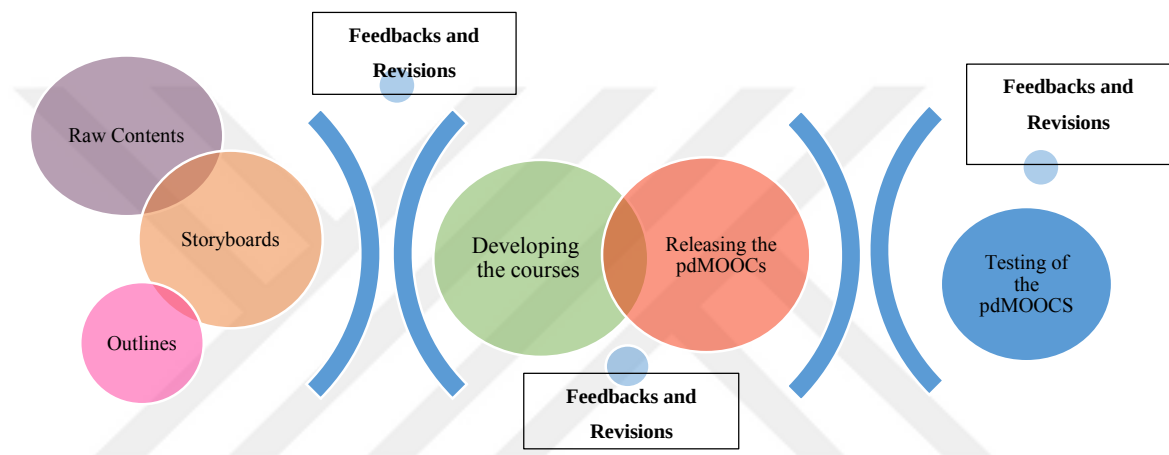


Figure 3.3. The representation of the pdMOOC project process

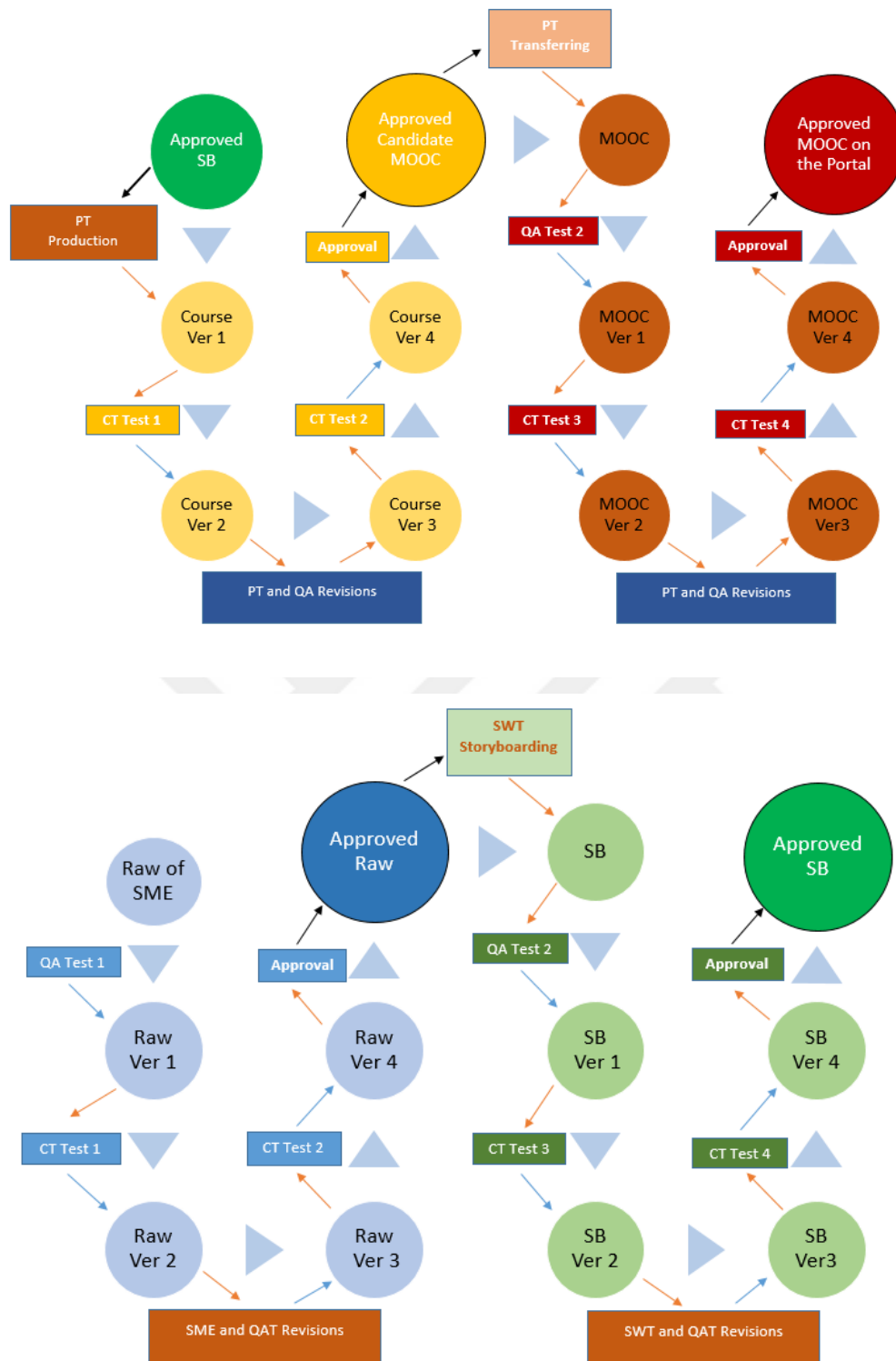


Figure 3.4. Representation of the ID process of pdMOOCs

3.5 Data Collection

Before the data collection phase, the researcher obtained the needed approval of the METU Human Subjects Ethics Committee (08/03/2017- 30/07/2017) (See Appendix B). Then, in the data collection phase, the researcher explained the aim and focus of the study to all participants. Before the interview process, all participants signed a consent form (See Appendix C), and the researcher informed them in terms of being voluntary participation and privacy. After interviews, each participant, a debriefing form (Appendix D) to follow this study, was provided with contact information for further communication. For this study, qualitative data help to explore the dynamics of the process. The details about these data sources, tools, learning environment, and other information are presented below.

3.5.1 Data Collection Methods

As Creswell (1998) defines, major qualitative data collection methods are observations, interviews, and documents. In this study, qualitative data gathered with the help of these three methods.

- **Interviews:** 4 representatives from Project Management Team (PMT), seven representatives from Coordination Team (CT), three representatives from Auditors and Project Specialists (APS), three representatives from Subject Matter Experts (SMEs), four representatives from Quality Assurance Team (QAT), seven representatives from. Storyboard Writer Team (SWT), and four representatives from the Developers Team (DT).
- **Document Analysis:** Project documents (ToR, Offer, Final report, Interim reports, Inception reports, monthly briefing reports, beneficiary meeting notes, weekly meeting reports, need analysis reports, comprehensive report, course development meeting minutes, best practices analysis report, innovative method report, steering committee reports, warning letters, raw contents of 100 pdMOOCs, storyboards of 100 pdMOOCs, and test documents of 100 pdMOOCs) and 7196 project emails (24.11.2014- 24.11-2017).
- **Observation:** Researcher observation notes for all phases of the Bilgeİş Project)

3.5.1.1 Interviews

Purpose: All the interviews with Bilgeleş Project practitioners helped to determine the dynamics of the ID process and validation of the gathered data. The purpose of the interviews in this study is to determine the practitioners' overall reaction to the instructional design process and implementation.

Data Source: All interview transcriptions belong to project practitioners

One of the commonly preferred data collection tools in qualitative research, interviews can help to gather data from the people who are in charge of this Project. As stated by Cannel and Kahn (1968), the interview is a "two-person conversation, initiated by the interviewer by the specific purpose of obtaining research-relevant information, and focused by him on contents specified by research objectives of systematic description, prediction, or explanation" (p.530). So, by using the interview technique, it should not be underestimated that content, wording, and sequence are completely up to the interviewers (Kerlinger, 1970). The purpose of the interviews in this study is to determine learners', content developers, technical assistance team, project managers', key and non-key experts', coordination members', and some stakeholders' overall reaction to the instructional design process and implementation.

Interview Questions

Three experts have reviewed these interview questions for clarity of the content. During the interviews, the questions were asked in the same order. This facilitates to find responses and compare them with each other in the analysis. Interviews were recorded and transcribed verbatim. During the interviews, notes were taken by the researcher, especially notes that may relate the interviewee's body language in addition to his/her words. Also, some specific attention-grabbing questions were asked to participants to remind their own ideas. This approach is preferred because the general interview guides approach increases the quality of the data, makes data collection systematic, and interviews conversational. The structure of interview questions is based on the practitioners' experiences about both the pilot pdMOOCs creation process and the others. So the questions mainly include the issues about what worked, limits, barriers, enablers, facilitators, reasons for time delay, factors affecting the ID process negatively, factors

affecting ID process positively, changes in opinions about the ID process, previous experiences, expectations, assumptions, factors/theories affecting instructional approach, suggestions if it is possible to restart, unique features of Project, suggestions for an effective ID process, etc. *Appendix E* represents a general framework of semi-structured interview questions.

Interviewers

The study's nature is based on the whole people who took place in the design and development process of the Project, and they can be categorized as 1. Project Management Team (PMT), 2. Coordination Team (CT) 3. Auditors and Project Specialists (APS), 4. Subject Matter Experts (SMEs), 5. Quality Assurance Team (QAT), 6. Storyboard Writer Team (SWT), and 7. Developers Team (DT). Since the interview process required voluntary participation, the researcher could not have done interviews with some experts from DT and SWT. Interviews took approximately 100 minutes for each interviewee. *Table 3.5* shows the demographic information of interviewers.

Table 3.5 Demographic information of interviewers

	Code	Team	Gender	Role	Experience
1	SWT_PT_1	SWT and PT	female	Team Lead	27
2	SME_SWT_PT_1	SME, SWT, and PT	male		13
3	SME_SWT_PT_2	SWT and PT	male	Team Lead	7
4	CT_5	CT	female	Team Lead	15
5	CT_4	CT	male		13
6	CT_3	CT	male		10
7	CT_7	CT	female		5
8	CT_6	CT	male		20
9	CT_1	CT	male		10
10	CT_2	CT	male	Team Lead	27
11	QAT_1	QAT	female		15
12	QAT_2	QAT	male		15
13	QAT_3	QAT	male		15
14	QAT_4	QAT	female		10
15	SWT_PT_2	SWT and PT	female	Team Lead	20
16	SWT_2	SWT	female		1
17	SWT_3	SWT	female		1
18	SWT_4	SWT	female		1
19	PMT_3	PMT	female	Team Lead	15
20	PMT_2	PMT	female		25
21	PMT_1	PMT	female		15
22	PMT_4	PMT	female		15
23	APS_1	APS	male		16
24	APS_2	APS	female		9
25	APS_2	APS	female		6

3.5.1.2 Document Analysis

Purpose: All the Bilgeİş Project documents helped to determine the dynamics of the ID process and validation of the gathered data.

The whole documents have a minor or major role in the ID process in terms of including decisions, standards, rules, or reasons for actions. Also, the versions of documents can show all revision requests and their implementation status. The information sources related to the Bilgeİş Project may include design, development, and testing tasks documentations like monthly briefing reports, emails, inception reports, etc., documentations of the needs assessment, best practices analysis report, formative and summative evaluation documents. Also, the discussion topics and content of the messages can be important to detect the barriers and motivators in the platform. During the Project, a cloud Bitrix 24 area was used for file sharing and following all versions of course documents.

- *Data Source 1(DS1): Project Reports*
ToR, Offer, 1 Final Report, 3 Interim Reports, 1 Inception Report, Need Analysis Study Report, Comprehensive report, Best practices Analysis Report, Innovative Method Report, Warning Letters, etc.
- *Data Source 2(DS2): Meeting Minutes*
Kick-Off Meeting Minutes, 18 Monthly Meeting Minutes, 20 Weekly Meeting Minutes, Initial Meeting Notes, 2 Steering Committee Meeting (SCM) Minutes, Content Development Meeting Minutes, etc.
- *Data Source 3(DS3): 7.196 emails (24.11.2014- 24.11-2017)*
Email analysis is required for detecting some specs, feedbacks, decisions, problems, and following the whole process of the Project.
- *Data Source 4(DS4): 100 Course Files (All versions of raw content, storyboard, development, and test documents).*

3.5.1.3 Observation

Purpose: All the observation notes which are taken by the researcher during the project meetings helped to determine the dynamics of the whole process and validation of the gathered data.

Data Source: Researcher Observation Notes (nearly three years) (For all phases of the Bilgeİş Project)

Example 1: “Everybody is quite nervous about the issue regarding which items are green or orange in specs document because it is unclear who and how will decide which one is green or orange.”

Example 2: “If only we could say that the suggestions in the innovative method document were known already because nobody was aware of that document (laughing).”

3.5.2 Qualitative Data Analysis

Moreover, to show how the data analysis was conducted, the following project cycle representation can give an idea (See Figure 3. 5). The role of the researcher in this process is to observe and interpret whole related data, then verify them by using corresponding data sources. Moreover, Table 3.6 provides information about the whole data sources and their missions in the process.

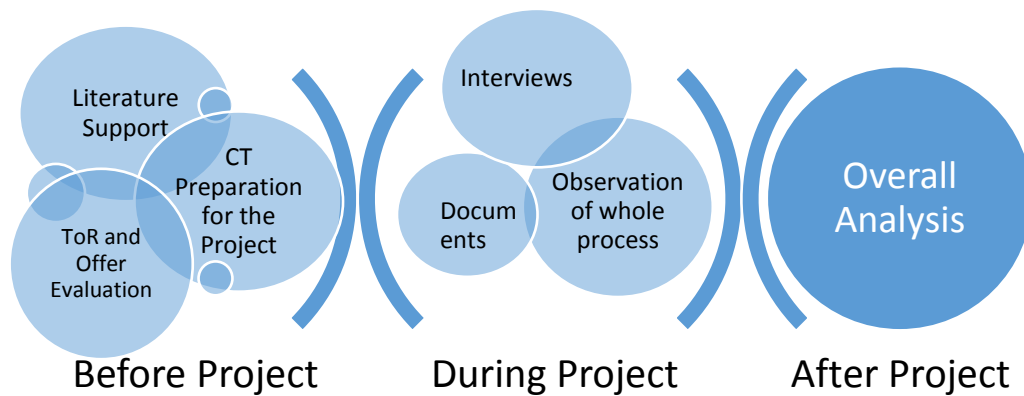


Figure 3.5. Data analysis cycle of the study

Table 3.6 *The summary of the qualitative data analysis*

Phases	Examined data sources for semi-structured interview Topics/Questions	Examined data sources for document analysis	Supportive data
A. Analysis Phase	1. Feedbacks and revisions of pilot 10 MOOCs (all versions) 2. Emails 2. Meeting Minutes 3. Observation Notes 5. Content and Delivery Specs 6. Technical Documents: Offer and ToR	1. Feedbacks and revisions of pilot 10 MOOCs (all versions) 2. Emails 2. Meeting Minutes 3. Observation Notes 5. Content and Delivery Specs 6. Technical Documents: Offer and ToR 7. All Monitoring Sheets	1. SWOT 2. Need Analysis Survey and interviews 3. Inception Report 4. Innovative Method Document 5. Best Practice Analysis 6. Interim Reports 7. Final Report
B. Raw Content Preparation	1. Feedbacks and Revision of 90 Raw Content (all versions) 2. Emails 3. Meeting Minutes 4. Observation Notes 5. Content and Delivery Specs 6. QA Documents	1. Feedbacks and Revision of 90 Raw Content (all versions) 2. Emails 3. Meeting Minutes 4. Observation Notes 5. Content and Delivery Specs 6. QA Documents 7. All Monitoring Sheets	1. Interim Reports 2. Content and Delivery Specs 3. Innovative Method Document 4. Final Report
C. Storyboarding Phase	1. Feedbacks and revisions of 90 Storyboards (all versions) 2. Emails 3. Meeting Minutes 4. Observation Notes 5. QA Documents	1. Feedbacks and revisions of 90 Storyboards (all versions) 2. Emails 3. Meeting Minutes 4. Observation Notes 5. QA Documents 6. Monitoring Sheets	1. Interim Reports 2. Content and Delivery Specs 3. Monitoring Sheets 3. Final Report
D. Development and Initial testing Phase	1. Feedbacks and revisions of 100 MOOCs on Moodle (all versions) 2. Emails 3. Meeting Minutes 4. Observation Notes 5. QA Documents 2. End-User Tests 3. Accessibility and Usability Tests 4. Portal Comments	1. Feedbacks and revisions of 100 MOOCs on Moodle (all versions) 2. Emails 3. Meeting Minutes 4. Observation Notes 5. QA Documents 6. End-User Tests 7. Accessibility and Usability Tests 8. Portal Comments	1. Interim Reports 2. Monitoring Sheets 3. Final Report 4. Course Development Meeting minutes
E. Organizational Issues	1. Meeting Presentation/Work plan files 2. Meeting Minutes 3. Observation Notes 4. Emails 5. ToR and Offer 6. Observation Notes 7. Feedbacks on course materials	1. Meeting Presentation/Work plan files 2. Meeting Minutes 3. Observation Notes 4. Emails 5. ToR and Offer 6. Monitoring Sheets 7. Experience Sharing Sheets 8. Interim Reports 9. Feedbacks on course materials	1. Work Plan 2. Risk Management Tables 3. Irregularity /Interim Reports 4. Progress Charts 5. Final Report 1. Observation Notes 2. Feedbacks on course materials 3. Interim Reports 4. Final Report 1. Meeting Minutes 2. Emails

3.5.2.1 Details about the data analysis process

Firstly, the researcher read all the transcripts and tried to find negative and positive expressions. If the expressions included suggestions, they were specified. Then, all the expressions were carefully examined three times. The issues most frequently mentioned, most discussed topics in meetings, email categorization helped the researcher in this examination. Sadana (2012) stated that a theme should be an outcome of coding, and coding decisions are based on the methodological needs of the study. Also, the researcher was careful about a coding pattern can be characterized by similarity, difference, frequency, and sequence, etc., and used criteria set to determine the codes and the themes. Also, these themes and codes were categorized under the stages of the pdMOOC ID process.

Criteria set for determining the themes: The themes of meeting minutes, most discussed topics in meetings, email categorization

Criteria set for determining the codes: The same person's previous ideas (from the meetings and emails), a different person from a different team, a different person from the same team, a person from the authority team, a person from the evaluator team, a person from QAT, a person from PMT, from personal emails, researcher observations, opinions of different SMEs, opinions of Help Desk Team, Opinions of stakeholders, mentioned document in the interviews, experts opinions, different end-user tests results, course comments on course quality test, All versions of supportive data sources, telephone meetings, the discussions of study visits, Notes of the "coffee time" meetings, Link between uncategorized/undefined interview data, etc.

The remained analysis process was like:

- First member check
- Reviewing the related literature, the project documents, ad e-mails
- Develop preliminary code and theme list
- Reexamination of the transcriptions
- Discussing the code list with colleagues to finalize the list and create a codebook (iterative process)
- Code remaining transcripts using the codebook

- Organizing codes into overarching themes
- Second member check

3.6 Validity and Reliability

Before examining the important issues that will determine the impact and quality of the study, it will be useful to present a summary of some basic concepts.

- *Internal validity* in quantitative studies refers to *credibility* in qualitative studies that means truth-value. Generally, to ensure internal validity, long-term interaction, peer review, and the honesty of the participants are necessary.
- *External validity* in quantitative studies refers to *transferability* in qualitative studies that means applicability. Generally, to ensure external validity, thick description and purposeful sampling are necessary.
- *Reliability* in quantitative studies refers to *dependability* in qualitative studies that means consistency. Generally, to ensure reliability, an audit trail is necessary.
- *Objectivity* in quantitative studies refers to *confirmability* in qualitative studies that means neutrality. Generally, to ensure objectivity, an audit trail is necessary.

The researcher examined the validity and reliability of concepts from two perspectives. The first perspective is the general validity and reliability issues in the qualitative study, and the second one is formative research specific validity and reliability issues.

3.6.1 General validity and reliability issues in the qualitative study

Merriam (1995) states that its reliability is about the question of to what extent the findings of the research will be found again. In other words, it is about whether the findings will be the same if the research is repeated. Audit trail and external audit methods can help the researcher in terms of awareness of reliability and objectivity.

- **Audit Trail:** Doing a similar study replicating the study should be possible if the researcher can explain the whole process clearly (Merriam, 1988). So, other practitioners or researchers can follow the data collection steps easily. The

researcher explained all the study procedures, the data collection, categorization, and decision-making processes, as Merriam (1995) recommends.

- **External audit:** This is a researcher hires or obtains the services of an individual outside the study to review different aspects of the research. Therefore, for this study, the researcher received the opinions and suggestions of two people who did not work in the Bilgeİş Project and was no familiar with the ID process.

When the validity issues are examined, there are two dimensions: external and internal validity.

External Validity: External validity is about generalizability (Yıldırım & Şimşek, 2011). The detailed description and purposeful sampling are used to ensure external validity (Erlandson, 1993). In this study, both methods were used to ensure external validity.

- **Purposeful sampling:** The researcher wanted to interview the representative practitioners from all the teams of the Project.
- **Thick description:** It is crucial to understand all phases of the study for the readers easily. Therefore, a clear presentation of the research context, people, and all other details can help to confirm the external validity of the study (Merriam, 1998). In this study, the environment, participants, implementation process, and analysis of data are expressed in detail.

Internal validity: Internal validity is about whether the researchers' comments on the subject they are examining reflect the reality (Yıldırım & Şimşek, 2005). For the current study, triangulation, peer review, member check, peer/expert control, researchers' experiences, assumptions, prejudices, and participation, and researcher experience were provided to ensure internal validity, as Merriam (1995) recommended.

- **Triangulation:** From the accuracy and trustworthiness perspective, providing evidence from different people, different data types, and different data collection methods (Creswell, 2012). For reliability and internal validity, using multiple data sources in the data collection phase (Merriam, 1995). The triangulation

process includes evidence from different individuals (e.g., a leader and a member), types of data (e.g., observational field notes and interviews), or methods of data collection (e.g., documents and interviews) in descriptions and themes in qualitative research.

- **Peer Examination:** This helps the researcher for confirming the results and getting rid of possible bias (Merriam, 1995). Three peers have examined the codes and themes with the related quotations.
- **Experience of researcher:** In order to clarify the researcher's academic orientation, the research experience of the researcher should be shared. Sufficient information is given in the researcher's role section for this stage.
- **Expert Examination:** This helps the researcher for confirming the data analysis procedure has been carried out correctly. Expert control is about getting peers or colleagues' opinions about whether the findings are meaningful by examining the data (Merriam, 1995). In addition, the comments, opinions, and suggestions of the experts in the advisor and thesis monitoring committee were taken into account at all stages of data collection and analysis.
- **Member checking:** This is a process in which the researcher asks one or more participants in the study to check the accuracy of the account.

First Member Check: The interview transcriptions have been shared with the participants and ask for their confirmation.

Second Member Check: The results of the study have been shared with two participants and ask for their control.

3.6.2 Validity and Reliability Issues in Formative Research

As mentioned earlier, to be able to design teaching practices or processes, formative research can be defined as a form of developmental research or action research which aims to develop a design theory (Reigeluth & Frick, 1999). Thus, it is aimed to guide researchers working to develop ID theories and eliminate unnecessary elements. The participants may have difficulty in criticizing the design process or case (Frick & Reigeluth, 1999). Since the researchers can have little idea as to what weaknesses and

areas of improvement, it is important that the data collection process should be flexible and start with open-ended probes (Frick & Reigeluth, 1999). The researchers should collect information about the strengths and weaknesses of the design or case, what should not be changed, and what should (Frick & Reigeluth, 1999). In addition, this method reveals the strengths and weaknesses of the design process created and enables necessary improvements to be made (Reigeluth & Frick, 1999). In order to enlighten the methodological issues for formative research and the unique structure of this study, detailed information will be given in this part. First, as Reigeluth and Frick (1999) suggest, three important issues will be examined to handle some concerns related to case studies (e.g., lack of rigour). The following parts address these important issues.

1. Construct Validity: Construct validity is "establishing correct operational measures for the concepts being studied" (Yin, 1984, p. 37). In other words, for case studies, construct validity is related to arranging accurate operational measures for the study's concepts (Yin, 1984). In the formative research, the concepts refer to the methods stated in the design theory, and there may be some situations that will affect these methods and criteria for outcomes. So, in order to ensure construct validity, there should be at least two experts in the theory. Besides, *omission* and *commission* can have a negative effect on construct validity. Therefore the experts/researchers should be careful about implementing or improving an ID theory or model. In this study, both the researcher and her advisor had significant responsibilities and efforts to ensure construct validity.

2. Sound Data Collection and Analysis Procedures: There are two main factors in this procedure: *Thoroughness and Credibility*. While *thoroughness* is related to good preparation of participants, comprehensive data collection process, and determining pros, and cons, etc., *credibility* refers to triangulation, member checks, and explanation of the researcher's biases, assumptions, etc. These methods were already explained in *Section 3.6.1*.

3. Attention to Generalizability to the Theory: To generalize the results to the theory, *Situationality and Replication* –tools for generalization- should be examined in detail. For instance, *replication* is a must to confirm the results of any type of formative research

study. Plus, it is suggested that trying to vary elements related to the data (purposively) in terms of seeing the differences in different situations. This suggestion is associated with the *situationality* and audit trail.

3.7 Assumptions

There were four assumptions for this study:

- Bilgeİş Project is performed as planned. This means the Project is carried out properly in terms of time planning, activity planning, etc. Also, the active contribution of all parties to the project phases and especially meetings are maintained.
- The whole data are kept, analyzed, and interpreted accurately. If there are statements/expressions that may create an inconsistency between the interview, document, and mail data, the participants' final statements are taken as the basis.
- Since this study aims to examine an entirely natural phenomenon, there is no intervention by the researcher.

3.8 Researcher's Role

In qualitative studies, the researcher needs to interpret the experience and research findings on the subject of the study by this experience (Ekiz, 2004). Therefore, this approach increases the reliability of the research. The researcher, as one of the members of the CT, had several responsibilities on ID phase-related activities. Generally, CT carried out the following activities to monitor the project implementation:

- Participation of more than ten seminars at five cities of Turkey, twelve weekly meetings, at least twenty weekly meetings, several other meetings to discuss issues like an innovative method, course contents, course development, and visual design, at least 13 stakeholder visits, eleven monthly meetings with participation of Contracting Authority, EU Delegation and all project teams.

- Reviewing all poster, e-newsletter, flyer, calendar, and t-shirt designs, Inception report, comprehensive report (including training needs analysis survey results, SWOT results, and best practice analysis), first and second interim reports
- Study visits to the United Kingdom and Holland
- For development of pdMOOCs:
 - 10 pdMOOCs' raw contents reviewed for several times
 - 10 pdMOOCs' course materials reviewed for several times
 - 10 pdMOOCs' raw contents approved for storyboarding
 - 10 pdMOOCs' storyboards reviewed for several times
 - 10 pdMOOCs' storyboards approved for production
 - 10 pdMOOCs tested for several times
 - 10 pdMOOC approved for being candidate pdMOOC
 - 10 candidate pdMOOC tested for several times
 - 10 candidate pdMOOC approved for to be uploaded to the portal
 - 10 pdMOOC end-user tests were reviewed
 - 10 pdMOOCs on the portal reviewed to be ready for Beta tests
 - 90 pdMOOCs' raw contents reviewed for 3 times (at least)
 - 90 pdMOOCs' course's materials reviewed for 3 times (at least)
 - 90 pdMOOCs' raw contents approved for storyboarding
 - 90 pdMOOCs' storyboards reviewed for 3 times (at least)
 - 90 pdMOOCs' storyboards approved for production
 - 90 pdMOOCs tested for 3 times (at least)
 - 90 pdMOOCs approved for being candidate MOOCs
 - 90 candidate pdMOOCs tested for 3 times (at least)
 - 90 candidate pdMOOCs approved for to be uploaded to the portal
 - 90 end user tests for pdMOOCs were reviewed
 - 90 pdMOOCs on the portal reviewed to be ready for Beta tests.

As a member of CT, the researcher contributed to all these aforementioned project assignments along with other members. *Figure 3.6* provides the study timeline by showing the project timeline comparatively. During the Project, she took part in many tasks in terms of both instructional design and general execution of the Project. Thus, she had the opportunity to observe the internal and external dynamics of the Project closely and had the opportunity to legally access all documents related to the Project. The limitations and delimitations related to her role in the study and the Project are specified in the related headings.

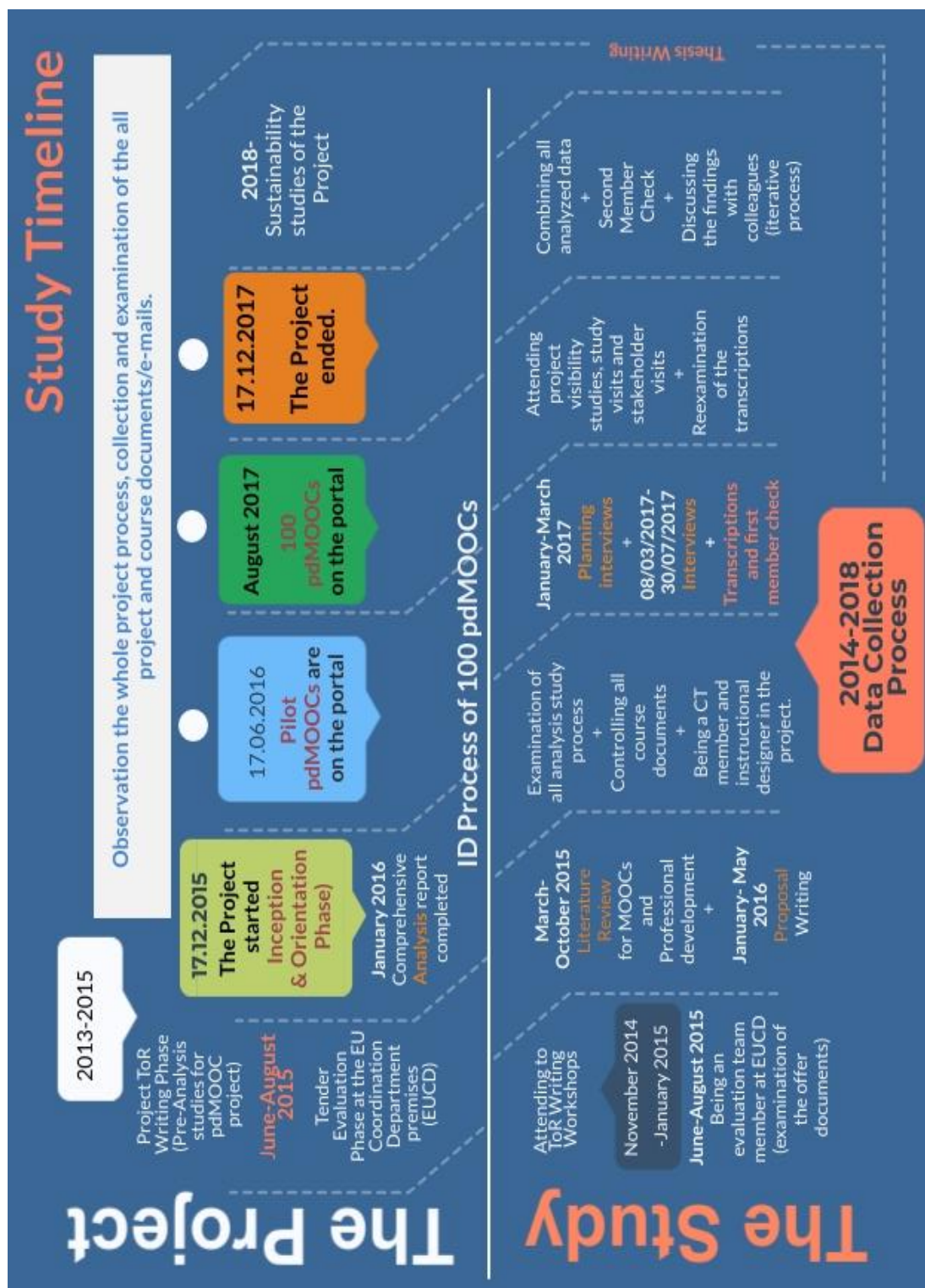


Figure 3.6. Study Timeline

3.9 Summary of the Chapter

This chapter aims to provide an overview of the study's methodological framework and to highlight the case of the study. The researcher intends to examine the dynamics of the pdMOOC ID process within the Bilgeİş Project. Also, *how can an effective and efficient ID process of pdMOOCs?* question was investigated in this qualitative framework. Since the underlying logic of formative research is related to determine the strengths and weaknesses of a design theory/ an instructional application/ ID process, the researcher used formative research methodology. To specify the research design, *In Vivo Naturalistic Case for a new theory* approach was the best fit for the current study's nature. To analyze all the ID process-related data, it is possible to find the answers to research questions and reflect the findings of the study. Thus, the design dynamics and the ID model of pdMOOCs provide more valid and reliable improvements for creating an ID theory. For the implementation, *Bilgeİş Project* was observed from beginning to end. Also, the researcher gathered data from multiple sources throughout the Project. The study's nature was based on the whole people who took place in the design, development, and evaluation process. The data gathered from the people in the Project and the mechanism of the Project were analyzed in accordance with the different teams in the Project. *Table 3.7* provides a summary of the methodological framework of the study.

Table 3.7 *The summary of the methodological framework of the study*

Name	Description
Title	Instructional Design Process Dynamics of pdMOOCs
Purpose	Exploring the dynamics of ID process of pdMOOCs.
Research Questions	What are the factors influencing the ID process of pdMOOCs? How? What are the suggestions for an effective and efficient ID process of pdMOOCs?
The case of the study	Bilgeİş Project- 100 pdMOOCs
The participants of the study	Coordination Team (CT) Project Management team (PMT) Auditors and Project Specialists (APS) Quality Assurance Team (QAT) Subject Matter Experts (SMEs) Storyboard Writers Team (SWT) Production Team (PT)
Methodology	Qualitative Research Formative Research/ In Vivo Naturalistic Case for a new theory
Validity and Reliability	Construct Validity Sound Data Collection and Analysis Procedures Attention to Generalizability to the Theory
Data Collection Tools	Researcher Observation Notes (For all phases of the Bilgeİş Project) Documents (ToR, Offer, Final Report, Interim Reports, Inception Reports, Monthly briefing reports, Beneficiary Meeting Notes, Weekly Meeting reports, Need Analysis Report, Comprehensive report, Best practices Analysis Report, Innovative Method Report, Steering Committee Reports, Warning Letters, etc.) E mails-24.11.2014- 24.11-2017 (7.196 e mail) Raw, SB, development, and test documents of 100 pdMOOCs. Interviews (24) Beneficiary-7(1 Manager+ 1 Team Leader+ 5 Project Worker) Contractor Company -3(2 Team leaders+1 Project Manager) MoLLs-2(old and new project specialist) EUD-1(Auditor) Quality Assurance Team/Online Tutors (4) SB Writers (4) Experts-3(Subject Matter Experts-3, Storyboard Writers-3, Production Team-3)

CHAPTER 4

RESULTS

This chapter presents the research findings of the study in parallel with the research questions, respectively.

1. What are the factors influencing the ID process of pdMOOCs? How?
2. What are the suggestions for an effective and efficient ID process of pdMOOCs?

While giving the answers to these questions, firstly, the explanations about the framework of the study will be presented (Section 4.1), then the data and explanations related to each question (Section 4.2 and 4.3) will be given in a detailed and systematic way. Also, the translations of the interview quotes are presented in *Appendix F*.

4.1 The Framework of this Study

The findings emerged from the whole analyzed data such as project reports, project meeting minutes, observation notes of the researcher, emails, etc., and interviews. *Table 4.1* presents the relation between research questions, related data used to answer the research questions, the partial results as subheadings, and outputs of the study. When *Table 4.1* examined, the “outputs” column content represents the “dynamics” of the ID process of pdMOOCs. Accordingly, the related results column shows the subheadings of this chapter. Therefore, all outputs came from the answers to two research questions created the ultimate goal of the study. Based on the qualitative data analysis results, positive/negative factors, and suggestions parts explain the relations and interactions between the themes and codes create concept maps for each phase of ID.

Table 4.1 *The framework of the study*

Research Questions	Data Source	Related Results	Outputs	Ultimate Goal
1. What are the factors influencing the ID process of pdMOOCs? How?	1. Interviews	Table 4.2 All Factors	a. All factors influencing the ID process of pdMOOCs. b. Interrelations of the factors	Dynamics of pdMOOCs ID Process
	2. All ID Process related project reports	(Part 4.2.1 Positive Factors, Part 4.2.2 Negative Factors)	c. Relation types d. Interactions of the factors e. Interaction types f. Formative Reflection of ID Process (cycles, decisions, experts, methods and design principles, etc.)	
	3. Observation notes			
	4. E-mails			
	5. All course development documents	Table 4. 20 All Suggestions (Part 4.3. Suggestions)	a. The suggestions for an effective and efficient ID process of pdMOOCs. b. Formative Reflection of ID Process (cycles, decisions, experts, methods and design principles, etc.) c. What works d. Lessons learned	
2. What are the suggestions for an effective and efficient ID process of pdMOOCs?	6. pdMOOC development Checklist			

Before explaining the themes and codes in a particular way, it is crucial to declare that all factors create a different dynamic on the ID process, which has several effects on all other factors. In other words, the codes under the related themes answer to some basic questions like what works, how this factor should be considered as a positive factor and why this affects this phase positively, *etc.* questions with related quotations from interviews, observation notes, and documents in the related phase of pdMOOC ID Process. On the other hand, there are also other positive factors affecting these main activities/results in terms of validity, quality, efficiency, *etc.* The researcher noted as an example of this interactivity between the factors in the following formula:

Specifying the proper topics to be taught = need analysis result? + educational guess? + literature support? + free? + easy to use? + user-friendly interface? + basic controls + Turkish language support? + popularity? + reliability? + expert opinions? + end-user comments? + easy to access? + advantages? + disadvantages? + Who can teach? + How we can reach SME? + Is SME Turkish? + translation process? + SME's availability + estimated time is given by SME to write the content + time expectations? + budget

This formula points out that entirely different factors create another dynamic on topics to be taught decisions in the project. So, it should be considered that code or theme does

not reflect any individual effect on any decision or any process; instead, they create a dynamic together.

4.2 RQ1. What are the factors influencing the ID process of pdMOOCs? How?

For the first research question, the following table represents a summary of all factors affecting the ID process. Qualitative analysis results pointed out that there are two types of factors (positive and negative) and five main phases in the ID Process: *A. Analysis, B. Raw content preparation, C. Storyboarding, D. Production and Initial Testing* (See Table 4.2). Since the ID process has iterative mini-cycles in themselves, these four main phases also include their own separate feedback and revision phases. In addition, as the fifth phase, which covers all project processes, *E. Organizational Issues* raised from the results which have importance on the whole ID phases and stand for reflecting all external factors for ID steps like communication, quality management, project management, etc.

While positive factors were derived from the expressions, including enablers, providers, facilitators, and supporters, etc., negative factors emerged from the expressions, including the barriers, challenges, limitations, difficulties, problems, etc., in the ID process of pdMOOCs. Generally, the relation types between themes and codes were like a reason, aim, trigger, motivator, but the relation types also can be more negative like block, demotivator, destroyer, prohibitive based on the semantic links.

Table 4.2 *All Factors*

Phases	Positive Factors	Negative Factors
Analysis	1. Practical contributions of the analysis studies	1. Drawbacks of analysis studies
	2. Lessons learned from pilot pdMOOCs	2. Pilot pdMOOCs' problems
Raw Content Preparation	1. Pros of raw content development	1. Insufficient contents
	2. Improvements on revisions	2. SME related problems
		3. Revision problems
Storyboarding	1. Enablers of the storyboarding process	1. Poor quality of storyboards
	2. Desired instructional strategy	2. Difficulties in implementing instructional strategies
	3. Improvements on revisions	3. Revision problems
Production and Initial Testing		1. Limitations of pre-production phases
	1. Reformation on the pre-production process	2. Challenge of portal development
	2. Formative evaluation of the ID process	3. Revision problems
		4. Insufficient quality tests and revising problems
		5. Worry about testing
		6. Problems of feedback and revision phase
Organizational Issues		1. Shortcomings of project management
	1. Improvements in project management	
	2. Standardized quality management	2. Barriers to quality management
	3. Effective organizational communication	3. Human capital management problems
	4. High motivation	4. Limitations emerging from the nature of the project
		5. Complicated organizational communication
		6. Perceptions and expectations

4.2.1 Factors Affecting Positively

Positive factors represent the enablers, providers, facilitators, and supporters, etc., in the ID process of pdMOOCs. *Table 4.3* shows the relations between themes and codes to clarify some relation types such as reason, aim, trigger, motivator, etc. The numbers next to the codes represent the frequencies of codes.

Table 4.3 *Positive factors*

Phases	Themes	Codes
A. Analysis	1. Practical contributions of analysis studies (26)	1.1. Conducting a pre-analysis study (3) 1.2. Identifying the majority of needs (8) 1.3. Adding course topics based on foresight (5) 1.4. Facilitating for taking stock of the situation (6) 1.5. Creating a knowledge base (4)
	2. Facilitators of lessons learned from pilot pdMOOCs (17)	2.1. Extending QAT (1) 2.2. Simplifying contents (3) 2.3. Creating standards (4) 2.4. Trying to develop prototypes (3) 2.5. Identifying the instructional method (6)
B. Raw Content Preparation	1. Pros of raw content development (20)	1.1. Reliable and up-to-date content (2) 1.2. Qualified SMEs (8) 1.3. Desired course context (6) 1.4. Simplified contents (4)
	2. Improvements on revisions (4)	2.1. Double-sided testing (3) 2.2. Controls of MEE (1)
C. Storyboarding	1. Enablers of the storyboard writing process (13)	1.1. Quality of raw content (4) 1.2. Cooperative working with SME (3) 1.3. SWT's know-how on production technology (3) 1.4. Brainstorming on storyboards (3)
	2. Desired instructional strategy (36)	2.1. Instructional needs-oriented (4) 2.2. Fairly human presence (5) 2.3. More problems, more solutions (6) 2.4. More simple, less complicated (6) 2.5. More procedural, less conceptual (4) 2.6. More practical, less theoretical (3) 2.7. More interactivity, more variety (4) 2.8. More visualization, less wordiness (4)
	3. Improvements on revisions (35)	3.1. Iterative cycles of testing storyboards (9) 3.2. Creating standards on storyboards (3) 3.3. Double-sided testing (9) 3.4. The experience and know-how of the testers (14)

Table 4.3 *Positive factors* (continued)

Phases	Themes	Codes
D. Production and Initial Testing	1.Reformation on pre-production process (19)	1.1. To be familiar with the production technology (4) 1.2. Clear Storyboards (7) 1.3. Involvement of the SMEs (4) 1.4. Involvement of the SBWs (4)
	2.Formative evaluation of ID process (16)	2.1. Iterative testing (8) 2.2. Prioritization of the revision requests (3) 2.3. The experience of CT (5)
E. Organizational Issues	1. Improvements in Project Management (9)	1.1. Networking skills of PMT (3) 1.2. Outsourcing and expanding the teams (6)
	2. Standardized Quality Management (24)	2.1. The existence of the QAT (8) 2.2. Experience of QAT (4) 2.3. Presence on every phase of ID (3) 2.4. Preparing rubrics for ID Process (6) 2.5. The objectivity of QAT (3)
	3. Effective Organizational Communication (40)	3.1. Open communication (11) 3.2. A common language (7) 3.3. The effectiveness of meetings (13) 3.4. Collaborative working (9)
	4. High Motivation (18)	4.1.Usefulness Sense for Society (3) 4.2.Dedication (7) 4.3.Team Leader's Approach (5) 4.4.Unique and Prestigious University's Project (3)

A. Analysis Phase

As a rule, in the analysis phase of the Instructional Design (ID) process, instructional problems, goals, and objectives should be clarified; pre-knowledge, skills, and needs of target groups should be determined. Also, many organizational and technical preparations for the design phase should be done in this period. It can be defined as an orientation and inception phase of any ID project. Since Bilgeİş Project was constructed in a formative evaluation manner, the analysis phase also covers pilot implementation and iterative design cycles to improve the MOOCs and their design process. Besides, this phase does not reflect specific dates since the analysis phase activities have been performed in different time slots due to the organizational structure of the project.

As positive factors in this phase, two themes emerged from the analysis: 1. *Practical contributions of analysis studies*, and 2. *Facilitators of lessons learned from pilot pdMOOCs*. These two themes covered many issues related to main activities/results of the inception period of the project like need analysis survey for identifying needs, in-depth interviews with the target group, best practice analysis studies to understand what works, study visits to share ideas and to get feedback, SWOT for awareness of practitioners, steering committee meetings for brainstorming, the pilot practice of pilot pdMOOCs, the orientation of practitioners, data collection process, documentation, implementing outputs to the project, etc. *Table 4.4* shows positive factors of Analysis Studies of pdMOOCs.

Table 4.4 *Positive factors of Analysis Studies*

	Theme	Code
A. Analysis	1. Practical contributions of analysis studies (26)	1.1. Conducting Pre-Analysis Study (3) 1.2. Identifying the majority of needs (8) 1.3. Adding course topics based on foresight (5) 1.4. Facilitating for taking stock of the situation (6) 1.5. Creating a knowledge base (4)
	2. Facilitators of lessons learned from pilot pdMOOCs (17)	2.1. Extending QAT (1) 2.2. Simplifying contents (3) 2.3. Creating standards (4) 2.4. Trying to develop prototypes (3) 2.5. Identifying Instructional method (6)

Theme 1: Practical Contributions of Analysis Studies

Most of the interviewees from different teams believe that the whole need analysis studies had an essential contribution to decision making, identifying the course topics, or creating a knowledge base for practitioners. Both collected data and collection tools seem as pros of the analysis process. The following three quotations demonstrate that different analysis studies had practical contributions to the ID process from members of different team's perspectives.

I1: If we look at the process as a whole, it is essentially useful to do such analyses as a need analysis and a SWOT analysis while developing a MOOC (CT1).

I2: Needs analysis questionnaire along with SWOT are important in such ways as to decide what to do at a certain point, to decide which courses you cover, or at least to discover the characteristics of the client group. Examining the best practices is also likewise. It is significant to do it at the beginning of the project

and also significant to give insight into things to be done later. In general, similar things are done in almost all projects. First, an investigation is conducted, and then the best examples are gone into, or some study visits are paid (APS3).

I3: The reach (participation) was very high, and quality information was collected (PMT1).

Although examined documents and emails had no evidence in terms of getting benefit from the outputs of the analysis studies, practitioners generally seemed to be satisfied with using different strategies in analysis studies. In the qualitative analysis results, there were five codes related to the perceived practical contribution of analysis studies of the project: *1. Conducting Pre-Analysis Study, 2. Identifying the majority of course topics, 3. Adding course topics based on foresight. 4. Facilitating for taking stock of the situation, 5. Creating a knowledge base.*

Conducting Pre-Analysis Study (3)

In order to save time, CT made a pre-analysis study and determined ten pdMOOCs' topics based on the possible target groups' needs before the Project TOR writing had not begun. Based on the analysis of emails, this predetermination of the pilot courses had been possible with small study visits, mini SWOTs, interviews, brainstorming activities, and literature analysis while the Project idea was reshaping between 2011-2013 years. The pilot analysis studies and pre-analysis of CT were identified by practitioners as an accelerator for the whole project; otherwise, there would be a need for extra time for the finalization of the formal project need analysis studies, and this situation would cause waste of time for some agile decisions and actions. One of the CT members who made these pre-examinations explained the issue, respectively:

I4: Even before preparing the project proposal when we were still in the shortlist, we had held some meetings about what the needs of employees and employers would be. We had met various stakeholders. We first met SMEs and then visited the Technopolis. We actually did a kind of mini SWOT analysis to have a certain idea on what employees and employers might need before The SWOT analysis that we had done after the project. After that, we diagnosed those ten courses using a rather informal method by making an “educated guess” combined with our own experiences. In other words, there was an educated guess as well as the meetings we held before that. We are aware of what the Ministry expects. We know what the employees and employers anticipate. We have our own previous experiences. What could be the courses on them? When we look at back now, I believe that if we were to pick out the courses again, most of these ten courses would still be among the top ten (CT6).

Identifying the majority of needed course topics (8)

As mentioned in the code above, only ten courses' topics and names were certain at the beginning of the Project. So, in TOR and Offer documents, it was planned that the remained 90 courses' topics should have identified based on all analysis studies results of the Project at the Inception Phase. As expected and assumed, the need analysis survey, in-depth interviews with employees and employers, best practices analysis, some job needs, and qualifications reports helped to identify the majority of course topics. The following quotations which belong to the different team members explain why and how this code was raised as a contributor in the ID process.

I5: In fact, if the courses within the scope of the project are examined, you may believe that the target group really needs these courses. I believe that anyone reviewing the project will find at least one course according to his/her need. This is actually an indication that the course analysis in the project has been done successfully (SWT3).

I6: There is a man needs something for anything. It was helpful in terms of matching it with the program which suits. A man, for instance, is required to develop poster or write something. There are millions of tools to do this or, not to exaggerate, thousands of tools. So, it has been helpful in matching it with the way we can do it in the best, smoothest, or cheapest way (CT1).

End-user opinions and feedback on the social media platform of the project or in the five pilot city meetings had also shown the majority of course topics of bilgeis.net had matched with the needs of the target group.

Adding course topics based on foresight/educated guesses (5)

When all documents and emails in the Project lifetime were examined, it was detected that sometimes practitioners had difficulty in terms of finding needed courses, SMEs of the courses, and possible future's needs of the target group. However, CT, QAT, PT, SWT, APS, and some stakeholders tried to make educated guesses, different from the need analysis outputs of the project at that time and recommended many course topics, which are top-rated courses on the portal in nowadays. For instance, although there was not any plan regarding "Jobs in the Future" category courses or social skills related courses in the project documents, new ideas emerged from the meetings or suggestions coming from the practitioners or target group, which led the project team to search new course topics. Interviews commonly evaluated this situation as an important benefit for both the Project and ID process.

I7: Predictions played a role. There were CT2's contributions on that. He stated that this business would explode in the next twenty years and we should have definitely touched upon this area. It was turned into a course but it had not appeared in the result of the report. He contributed to that in that sense but of course field research contributed as well. Current circumstances and the predictions affected more in this process (PMT3).

I8: To be frank, I could not clearly foresee the self-help courses, thinking the non-significance of them. Yet, we realized that people had such demands. You are not able approach the issue from every perspective or ankle after all. From this point of view, it is important to have the opinions of those in need though it was not at a desired level (CT2).

Facilitating for taking stock of the situation (6)

Even though the majority of need analysis activities were conducted in the Inception phase of the project, they have an impact on all phases and help the practitioners regarding many vital decisions about MOOC phenomena. On the other hand, the Project process naturally made possible the mini evaluation and reevaluation process, and several touchstones in the Project facilitated the taking stock of the situation for the practitioners' perspective. Some of the interviewers from the different teams define the outputs of SWOT, Steering Committee meetings, or surveys as an enabler in terms of decision making for the ID process and Analysis phase since they could format and facilitate the manner of project analysis and overall process in somehow. Facilitation obtained from analysis studies outputs, especially SWOT analysis results, provide an objective perspective to the project team, and the practitioners state that they gained awareness. To clarify this code, the related part of the chapter of Digital Workplace Learning book written by two members of CT might be helpful:

In the initial phase of the project, the project practitioners collected important information via SWOT analysis and the presence of the stakeholders in SWOT focus meetings contributed considerable perspectives (Esfer & Cagiltay, 2018).

In the interviews, it was also possible to compile the opinions of different teams in the subject of facilitating for taking stock of the situation.

I9: We can say it is enabling for SWOT, for instance. To lift the threats, it is strongly critical to make agreements or to find shareholders. We can display advertisements on our own or do something else but we cannot control the rest. For example, it is better that other shareholders should tell other people or disseminate the information that there is such a thing. It is also good to be able to evaluate this in such an objective manner. After developing something, one is prone to think that his/her product is the best or it is highly different from other ones. So, it is good to evaluate this objectively. It is also good for a project to be able to do such comments as these are my strong points and weak points; these are my opportunities but these are also my possible threats (CT1).

I10: We already gather in steering committee once a month as the executive office, the beneficiary and the firm to see, maybe, the stakeholders are still with us. You are always in touch with each other as PG or METU but APS is usually not able to come together with the stakeholders so they are not able to know what the others think. The information we may obtain there will likely be more useful in future projects because we may plan according to it. Therefore, I think that they are precious to us and for you too (APS3).

Creating a knowledge base (4)

Obtaining first-hand experiences from study visits, and best practice analysis was valuable in terms of awareness-raising of practitioners, learning resolutions of some possible technical and sociocultural problems compare some features create some standards for the whole process. Creating a knowledge base by especially using the results of best practice analysis and study visits was regarded as an enabler for both the Analysis phase and the other issues/processes. The following quotations reflect the opinions of different team members.

I11: The team of experts who planned this research prepared a very good base (PMT1).

I12: There are lots of MOOC designs; the ones university prepared or private corporations did. The matter as to how we do it is our essential question. Within this respect, it is useful for us to go and examine the best practices since we have acquired “know-how” such as who do it and how to do it. To go and examine them is useful for the project after all though we are not able to implement it. Our level of awareness has increased. If nothing else, you acquire the knowledge as to how people do it and how the process works. What are those processes? What are the things pushed forward? What are the dynamics that is being affected? Or, simply, what are the most straightforward and simple designs of them? You went and received that knowledge (CT1).

Theme 2: Facilitators of lessons learned from pilot pdMOOCs

Contrary to the first theme, which covers mainly analysis studies related to positive factors, this theme focuses on the creation of the first ten courses, which could be identified as pilot pdMOOCs for the Bilgeİş Project in the Analysis phase. So, this theme emerged in connection with the solutions to encountered problems, and the majority of interviews stated that the creation of pilot pdMOOCs represented the first cycle of the whole ID Process, pilot prototypes, and a real-time orientation study to be on the same page. The practitioners anticipated that they could be samples to guide the remained 90 pdMOOCs. Also, these pilot courses in themselves were in a formative evaluation process. One of the QAT members define these courses and their contributions to the ID process as following:

I13: In fact, first ten courses are determined as the leading group of the project. In order to regulate the things and fix the process, it was called “the first ten courses”. It is claimed to be the first 10 out of 100 but I think that the first ten courses function as a device to pass the project from air and dust position to the inception phase (QAT1).

The majority of meeting minutes documents also supported the idea of pilot pdMOOCs made easier the Project and process for all the teams in terms of understanding and compromise.

E-Learning Company Leader talked about the current state of the Project, and she added that producing the first ten courses was a good process in terms of understanding mutual expectations. She reminded that this Project has many parties in it, but the aims are mutual. She stated that, as of today, everyone should be even more responsible for overcoming the risks. She said she believes that if everyone can work in line with the work plan, Project will be completed with success (5th Meeting Minutes).

At the end of the meeting, it was decided that at the moment we should concentrate only on four of the courses out of ten pre-determined. Those four will be presenting different types of courses. They will be finalized and presented to the CT for approval. The goal is to set the standards for further development. Those four courses are the following; Google Drive, Internet Security, e-trade, Social Media) also, the expert stated that they could be applied the lessons learned to the remaining six courses at the end (Content Development Meeting Minutes).

Based on the qualitative analysis results, there were four codes related to the lessons learned from pilot pdMOOCs creation process: *1. Extending QAT, 2. Simplifying contents, 3. Creating standards, 4. Trying to develop prototypes.*

Extending QAT (1)

Although the importance of QAT was a well-known necessity in every kind of Project in the very early times of the Project (Inception Phase) and in the analysis phase of the ID process, there was only one person who charged for quality check. After many meetings and discussions, to extend the number of QAT members was a good solution to time and reliability problems. As one of the big facilitators in the whole process, this action can be defined as an accelerator, helper for more objectivity, and a cooperator for CT course examinations.

I14: Forming some standards and constructing a quality assurance team in the first ten courses (SWT1).

The different versions of the first interim report also covered and discussed the mentioned topic as a “solution” for quality control deficiency, and too many revision request problems in the lessons learned part.

Problem: Quality control deficiencies in raw contents and scenarios. Solution: The quality control team has been extended (Interim Report 1).

Problem: Numerous revisions. Solution: The revision management process has been improved. The quality control team has been extended (Interim Report 1).

Simplifying contents (4)

In the pilot pdMOOC creation process, all the teams had difficulty in writing raw contents and storyboards, making voiceovers, making animations, designing screens, uploading courses to the portal, etc. So, the first cycles and first attempts of every work packages of Project were the nightmares for the practitioners. After that, everybody agreed that determining criteria for the teams' jobs could make the works easier. As one of the big rules, "simplifying" was recorded with different forms of expression. *Simplifying* has a meaning, including a wide scope in this Project like minimizing the scope, sequence, name, screen number of the courses, or purification of language, choosing less reading materials, etc. There are some quotations related to this code:

I15: After that [the first ten courses], we learned and started to change the process. Therefore, we moved into rather simplified and narrower matters from the longer and more intense content items as in the first ten courses. We made the topics more painstaking. For example, there was a huge topic like e-commerce in the former. In later courses, we delved into smaller matters such as pivot tables in Microsoft Excel. That changed first of all. We actually simplified our course topics. It would be more reasonable in terms of production to go into narrower topics rather than huge topics. It was also closer to what we craved for, because we would like to have narrower topics such as in a capsule mode. We wanted the users learn what they need to at once and in a most effective way in accordance with our target group's needs because they are employees and employers after all. As much the topic enlarges, the content extends likewise in scope. If the content extends, it cannot be in a capsule mode. Things becomes complicated after a point naturally. It turns into a gigantic matter, thinking that I should teach this, skip this, or not skip that, so we turned them into rather simplified topics. Thus subject-matters changed (CT5).

I16: One can fulfil the requirements by allocating as much shorter time as possible. Since it is somewhat a METU-based project, it has become more like giving homework assignments or the class hour lasts in three hours etc. (SWTDT1).

Many Project documents also indicated the simplifying contents criteria as an enabler for the ID process by explaining the importance of downsizing the number of questions, screens, words, buttons, and materials, etc.

Downsizing the number of slides/content and Providing the content in the form as simple as possible. (Interim Report 1).

Outlines of the Courses: E-commerce: Participants made a long discussion about the content of the 3rd and fourth parts. After that, it was decided to make a revision of those parts in order to make them simpler (4. Weekly Progress Meeting Minutes).

E-learning company leaders suggested that courses should include more videos and visuals and fewer words (1. Weekly Meeting Minutes)

One member of the SWT suggested that, in the Digital Promotion Course, the content should not have included long pages of readings. Those materials should be shared as an additional source in PDF files (not in the course screens). PM also agreed to this suggestion and added that it (long pages of readings) could also be presented in short animations, which will be more interesting than PDF. The team discussed the quality of the quiz questions. Increasing the number of questions may create a problem of ending up with unqualified quiz questions. PMT stated that evaluating users according to their understanding of content would be more effective rather than entering some “geek” questions like asking, “where is the save option, etc.?” So, PMT said that the team had to avoid such questions (Content Development Meeting Minutes).

Creating standards (4)

Creating standard bases for the general pdMOOC ID Process had been possible with the help of transferring the experience of the teams in the initial times of the project. In other words, the pilot pdMOOCs helped the practitioners in terms of creating some principles and guiding standards after the teams had experienced in this case. During the project, a lot of comparisons have been made to exemplify these standard bases in the meetings. Some of the quotations were like:

I17: We figured out what cannot be and what should not be done. In that respect, it is important (CT2).

One member of the SWT mentioned that the last screens of the lessons would contain the related quiz link (Initial meeting minutes of SWT).

In order to clarify the standard and decisions for the general pdMOOC ID Process, several document examples were presented below. As seen, many standards had been determined when the creation process of the pilot pdMOOCs was going on and after that. Besides, there were also some unwritten decisions which could be enablers for the ID process. For instance, based on researcher observation notes and Inception Report content, one of the crucial standard bases was the establishment of Helpline while pilot pdMOOCs were developing. *Table 4.5* shows some standard and decisions *as facilitators of lessons learned from pilot pdMOOCs* compiled from various meetings.

Table 4.5 *Standard and decisions as facilitators*

Standard and decisions	Document
CT asked what if a question could be solved by following more than one way. How the captures would lead users? E-learning Company presenter answered by indicated that there would be explanations of the other alternative ways. The discussion started with the quiz component of the portal. CT made two suggestions which are; Quiz questions should have been random for better evaluation. TAT also agreed to this idea.	4. Weekly Meeting Minutes
CT suggested that questions in the quizzes might appear according to the success of answered questions. For example, if a participant can answer the 1 st question correctly, the upcoming question might be more difficult accordingly. E-learning company answered that they would be searching for this method and try it. E-learning company stated that in quizzes, participants could not get access to the upcoming quiz without completing the content of the related topic. The CT also agreed to this idea, but also, they suggested that participants would not get access to the new topic, but they could get access to the quizzes without completing the content. Bitrix 24 has been chosen as a management tool. The special folder will be open for the courses development. Invitations to all team members will be sent.	3. Weekly Meeting Minutes)
The production team decided to use Captivate 9 as an authoring and development tool. The characteristics of several tools have been analyzed, and Captivate 9 is the best tool among analyzed tools for the project.	Content Development Meeting Minutes
Some works will require to be graded by instructors since some of them will not require a tutor's activity. Assignments and quizzes which will not be graded by instructors. Chapters will not contain assignments but will contain mid exams in it. Quizzes and exams will be implemented using Moodle.	Initial meeting minutes of SWT
APS2 asked if it was possible for METU to sign the certificates for participants who completed all the tasks envisaged by the course design. It will be a good motivation point and value for the participants to receive the certificates signed by METU. CT and TAT also debated this issue. This certificate might have named an "achievement certificate" or "completion certificate." It is all agreed that giving a "qualification certificate" is not proper in terms of the policies of the Ministry.	Inception Report Review Workshop Minutes
The activity and assessment plan of the courses will be developed in the manner that they can serve as both instructed and self-paced courses.	2. Weekly Minutes

Trying to develop prototypes (3)

Before the pilot pdMOOCs have released, all team members of the project claimed that there was a need to see one sample course to be on the same page. But precisely pilot pdMOOC creation process could be seen as a first creation cycle and took a long time than predicted, there was no prototype, and then practitioners wanted to see at least the prototypes of different kinds of course elements like quizzes, animations, green screen videos, outlines, etc. One of the CT members explained that the contribution of prototyping studies to the process respectively:

I18: In that phase [10 pdMOOC developing phase], there were similar steps as we do now but in a more detailed way, in fact. If we compare the products came out then with the ones coming up in the present, there is no much difference between them but the effort that we spent was huge and the method of learning there were wide in scope. As we learn more and more, we implemented it easier and easier in later ones. We adapted to other courses more easily (CT3).

Trying to develop prototypes in the Analysis phase was a very wide issue, which helped to make visible all representative parts of pdMOOCs, so some documents had also clued about these efforts.

Visibility in Social Media Course: CT showed an example video displaying statistics about social media usage, which was attractive and interesting. In light of this example, she asked for interactive design in this course (4. Weekly Meeting Minutes).

The courses' outline should consist of the following elements:

Learning objectives, Competences to be acquired after attending the course, Table of contents of the course (structure, modules, chapters), Previous knowledge required, Assessment methods to be used – in general Some interactions ideas, Some video ideas (Content Development Meeting Minutes).

Identifying Instructional Method (6)

Six of the interviewees claimed that identifying the instructional method was an important facilitator in the ID process. Generally, they explained the determined instructional method sheds light on the remaining process of the project.

I19: We, maybe, did not use a formal instructional design model but at least a methodology was applied to ensure that these steps and stages go parallel. In other words, rather than start doing the analysis, finish it, and then move into design, we began to design and improve the project while doing the analysis. If we had not done this, they might have been a catastrophe. Due to time limitation, we could luckily escape the danger in terms of completing the project. We are lucky that we did this at first. It shows that such projects like MOOC need to be conducted in a rather agile manner. If it is designed for quite distinct fields and different target groups, an agile approach should be favored. It is an indication that a systematic approach involving step-by-step or complete one step and go to the next one method does not work in such dynamic projects (CT2).

Since the Innovative method document suggested the ADDIE model in combination with rapid prototyping or agile development for pdMOOCs,

Content Development Methodology is recommended to be based on an ADDIE model in combination with rapid prototyping or agile development. As described in the article published by Ed Forest “Instructional Design Models and Theories” posted in Frameworks and Theories on December 9, 2015, Instructional Design (ID) method is a guide in designing and effectively tracking a project's progress. “ADDIE” stands for Analysis, Design, Develop, Implement, and Evaluate (Innovative Method).

CT and PMT discussed the effectiveness of this new approach.

Rapid Prototyping vs. ADDIE model approaches was discussed. CT commented on the ADDIE model proposed in the Innovative method and commented by the CT as a static model. E-Learning Company

team stated that because of the process of approving the content, the ADDIE model is more suitable. PMT indicated that the rapid prototyping had been proposed in the Technical Offer. The innovative method is at the moment in the process of review, so PMT will talk to the expert in order to try to combine those two approaches. It was discussed that CT requires a more practical approach for the contents (Content Development Meeting Minutes).

Later, as seen in *Figure 4.1*, the following instructional method was created for the Bilgeİş project. It was a combined approach in which both rapid prototyping or agile development principles can be implemented in cycles. Not after each step, but after 10 or 20 courses are developed and being implemented, and feedbacks are collected from participants and tutors.

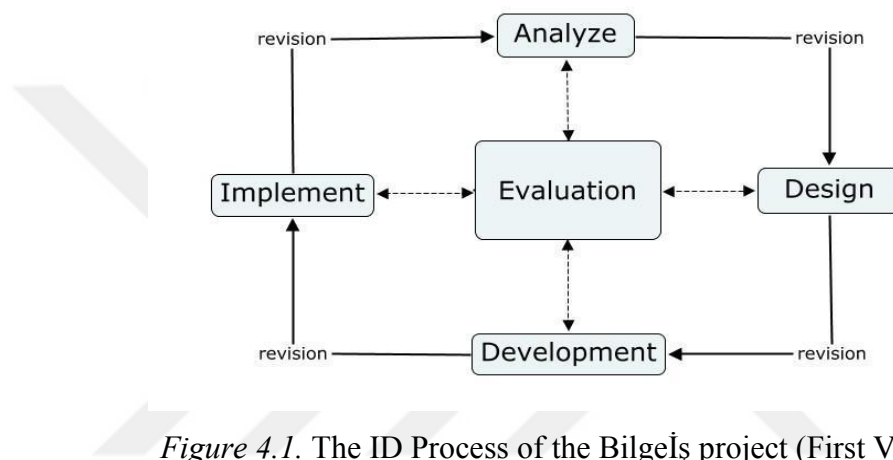


Figure 4.1. The ID Process of the Bilgeİş project (First Version)

B. Raw Content Preparation Phase

This phase can be identified as the core of the ID process. Although the well-known expression of Bill Gates mainly reflects his IT industry approach, similarly, “content is the king” from the ID perspective (Gates, 1996). Specifically, in the Bilgeİş project, to be able to prepare proper content for pdMOOCs and to find SMEs were hot discussion topics in the meetings and email conversations. Because raw content preparation has many dimensions such as identifying quality criteria and outline for the contents, spell check, -sometimes- translation, choosing proper examples for the target group, adding visuals, providing references of the sources, wording, finding SME for the content, the orientation of SMEs for the preparation of online content, teaching experience and know-how of SME, testing the contents, avoiding from advertisement, whether a program or

technology is taught or not, etc. Therefore, some decisions in this phase can be crucial for a course's design process. During the project, QAT and CT read the raw contents in the testing part and requested many revisions due to the outline of the course, learning context, and teaching approach, etc. According to qualitative analysis results, as positive factors of this phase, two themes emerged: 1. *Pros of raw content development*, and 2. *Improvements on feedback and revision phase*. Table 4.6 shows the positive factors of raw content preparation of pdMOOCs.

Table 4.6 *Positive factors of Raw Content Preparation*

	Theme	Code
B. Raw Content Preparation	1. Pros of raw content development (20)	1.1. Reliable and up-to-date content (2)
		1.2. Qualified SMEs (8)
		1.3. Desired course context (6)
		1.4. Simplified contents (4)
	2. Improvements on revisions (4)	2.1. Double-sided testing (3)
		2.2. Controls of MEE (1)

Theme 1. Pros of Raw Content Development

This theme had significant importance on the whole ID process as an accelerator. The practitioners emphasized the mission of the raw content by using analogies in the project's lifetime. For instance, E-Learning companies which have both SWT and PT defined their job as tailors, and they have come up with that statement: “if the fabric of the dress is good, then the tailor can show her performance.” At that point, it is clear that the quality of raw content depends on several factors. For instance, raw content, including sufficient and practical examples, may help the learner for better learning or to storyboard writers for creating more scenarios and problem situations.

Problem: Deficient (weak) examples in the raw contents. Solution: Additional examples in the raw contents have been increased (1. Interim Report).

Another example of the positive dimension of raw content writing is providing a clear outline. Because the clarity of outline draws a framework for the content and determine the limits of the scope. The following quotation shows the brainstorming activities in the weekly meetings in order to format the scope of the course.

Outlines of the Courses: Preparing Digital Promotions CT asked what did digital promotion materials exactly mean. All participants discussed the tasks that would be offered under this part. PM suggested that designing an e-mail signature could also be promotional material. Content Expert also added that greeting cards could be added (4. Weekly Meeting Minutes)

Although these two important enablers (drawing the outline and adding more examples to the raw contents) were crucial for the ID process, they were not referred to explicitly in the interview analysis; rather, they implied like a dimension of the qualified raw content. So, the other issues for the qualification of raw contents were the results of the qualitative analysis. Four codes revealed for this theme: *1. Reliable and up-to-date content, 2. Qualified SMEs, 3. Desired course context, and 4. Simplified contents.*

Reliable and up-to-date content (2)

During the Project meetings, all the members of the project emphasized that the reliability and up to dateness of the content, especially for ICT topics. For instance, a few months could change the version of a tool or software to be taught, or information in the content might not be valid or had no reference.

I20: True knowledge is quite important in raw content. So is the one transmitting the true knowledge because you know that true knowledge changes in time. When you prepare raw content depended on the knowledge in previous years, it is not that valuable, indeed. Our people may not like read a lot or do researches but if even one person among everybody comes up and says “this knowledge is out-of-date”, you are ruined at that point. This is how teaching works. Therefore, there were many valuable things such as the texts materials they prepared or the websites they directed us to (SWTDT 3).

As mentioned in the quote above, there is valuable content in Bilgeİş courses regarding reliability and up to dateness of the topic covered. The majority of the courses made easier both the control process and scenario preparation. Also, they accelerated the total course production time.

Qualified SMEs (8)

In the raw content preparation phase, practitioners’ perceptions about the SMEs, as expected, had influenced their motivation and control process of CT and QAT. “qualified SMEs” was recognized by the participants as both have experience in academic or education side and worked before with possible learners of Bilgeİş portal.

Experts who work actively with SMEs in the field and academicians are preferred (Final Report).

Moreover, preferably the qualified SMEs should be “open to collaboration, open-minded, evaluate the feedbacks carefully and ready to solve the problems immediately”. Generally, to work with a qualified SME made more comfortable and faster the raw content preparation and approval step. One member of SWT declared this issue as follows:

I21: Some people [SMEs] were very good at their areas of expertise and they constituted the part accelerating the process (SWT2).

Also, one SME asserted that some features of SMEs were enablers for the development of desired courses for the target group.

I22: I have done by fully imagining it. I have also some experiences with the SMEs but think of the others who have not – it is really hard for them to do this because s/he lives in a different world. Think about a software developer working at the Technopolis preparing a software course. It is impossible for him/her to prepare it for the SMEs. I was lucky while preparing it because I had the necessary qualifications. In contrast to this, if someone else is required to do it, s/he must have suitable academic background, relationships with SMEs, and be familiar with Turkish society. I may disregard the academic background but s/he must know the native people. It would not be right for anybody in Technopolis do it. S/he is at METU, graduated from METU, working at Technopolis, and frequenting Starbucks in middays. Too disconnected (SME1).

Moreover, cultural issues, professionalism, or time management skills of the SMEs could also be a factor for the raw content preparation phase.

I23: In terms of content, there were some SMEs with whom I easily worked although it is somewhat hard to define it in terms of know-how. There were some who understood us better and responded quickly, and who did not leave everything in a last minute as in a Turkish style, but these are individual-specific issues (QA1).

In addition to that, some documents have cleared the importance of working with qualified SMEs since this topic has been identified as a “solution” and the reason for preference.

Problem: Finding a proficient subject expert. Solution: Criteria set for expert selection. Experts who work actively with SMEs in the field and academicians are preferred. Consultancy services have been outsourced (1. Interim Report).

Desired course context (6)

The third raw content related decisive factor, which had an effect on the content quality and content preparation, is to be able to prepare course contents based on the desired course context. Since Bilgeİş pdMOOCs were not prepared only for SME employees and employers but also for everybody, one of the motivation sources in the Project was

providing ICT education for everyone. So, the practitioners referred that the desired context by implying the contents which were easy to understand, simple, basic, less theoretical, more practical, daily real-life examples. One of the SMEs explained this context, respectively:

I24: I delivered the course-content quite simply and without using formulas. If I were at Hacettepe University now, I would teach in a very different way. I did not teach in that way here. There was nothing mathematical inside it. However, the area you called photography is quite physic-oriented in essence. Everything is so simplified such as in our daily life. Animations are like that (laughing). They are quite simple and symbolic such as there is power which whirls and there is that. It is as if the teaching was oriented to the ones who do not know anything (SME1).

Similar to the perceptions of the SME, one member of SWT also asserted that the course contents developed for everyone could easily learn.

I25: After all, the courses were not offered only to the programmers or the cooks. Viewed from this perspective, courses were focused on basic topics and prepared according to the level in which everybody is able to learn from each and every topic (SWT2).

Simplified Raw Contents (4)

The simplification of raw contents was a real helper for several issues, such as meeting possible learners' needs, enabling the ID process, and compiling a lot of sources in order to present more brief, concise, and precise information. Including all aspects of the simplification, it also should be regarded as physical. For instance, the majority of the raw contents were prepared in MS PowerPoint rather than pages of word documents, based on the meeting decisions because SMEs could reduce the number of statements, words, etc., by imagining an online screen format (a slide on PowerPoint) while writing the raw contents. Following expressions from interview analysis and document analysis exemplified this code:

Decision: Limiting the length of the content and propose to have multiple levels of some topics (1. Interim Report).

I26: The structure of the course changed. The topics were narrowed down and content was made rather plain. Such thing as SMEs changes also relieved the process (CT5)

Theme 2: Improvements on Revisions

The first theme mainly comprises raw content quality issues, while the second theme is related to improving the raw contents testing and revising. Since SMEs' writing style, providing references, and instructional approach gave some clues about the quality of

the raw contents and their preparation process, QAT and CT always felt the responsibility of these issues on their shoulders while they were controlling and revising. On the other hand, the raw content preparation phase might be a generally endless feedback process, and this challenging situation positively affected the process.

I27: In my opinion, during the process of setting up a course [content], getting feedback is a working mechanism. Meeting with someone experienced or professional in this job definitely affects the process in a positive way (SWT3).

According to analysis results, two positive issues constituted the feedback and revision phase factors issues, which are 1. *Double-sided testing*, and 2. *Controls of MEE* (Measurement and Evaluation Expert).

Double-sided testing (3)

Based on the general observations of the researcher, getting feedback from different and independent experts was always a good solution to solve conflicts or to find a better way for any kind of problem. Although there could be contradictions among the people, and this might cause time loss, practitioners still seemed to be satisfied, and more creative/objective solutions were created for problematic situations of raw content preparing issue. One member of QAT defined *double-sided testing* as an enabler and helped them to handle with subjectivity problems.

I28: One person working on his own on the same content causes certain blindness. Those crossings were important to overcome this blindness. It was an enabler (QA1).

Similarly, based on the observation notes and course documents, it is possible to claim that practitioners were happy if they are not only responsible people of any kind of job, and they were always helping each other with “teamwork makes the dream work” approach. So, in the testing phase, this approach was regarded as a good strategy for both objectivity and creativity.

Controls of MEE (1)

As a surprising finding, the presence and controls of the measurement and evaluation expert were one of the least mentioned factors in the interviews. Maybe, since the majority of the practitioners could not meet face to face with the MEE, they had just

forgotten the related issues. However, as observed, while all team members declared the importance and necessity of these controls during the process. Moreover, a lot of errors related to quizzes and assignments stated in the first interim report, and then the allocation of an expert was accepted as an action to the problems.

Problem: Typos and format faults in the questions. Solution: Measurement and Evaluation Expert (MEE) allocated (1. Interim Report).

Unfortunately, there was a lack of the MEE in the QAT who could evaluate the quizzes, assignments, rubrics, criteria set, and all of the other issues related to measurement and evaluation in the initial phases of the project. So, CT, QAT, and SMEs were mainly responsible for the mentioned issues in those times. That's why one PMT member interpreted this issue as an innovation for the project. Generally, most of the practitioners seemed to they perceived this was a "must" for the MOOC quality, rather an "innovation".

I29: The major innovation in these courses is that a measurement and assessment expert go over all the questions. I myself was very worried (PMT2).

Based on the observations, MEE controls by an expert was always a positive factor in the ID process since the project team gained the following advantages as they should have in any kind of ID Project:

- to make clear all the quiz and assignment revision phase
- to control the feedback quality about the questions and evaluation types
- to control the suggested evaluation strategies by SMEs
- to check the format of the quizzes and assignments
- to provide a holistic and standard approach for all MOOCs
- to compare different evaluation strategies
- to check questioning styles of SMEs
- to control all measurements as an end-user
- to SMEs while preparing rubrics for more objective evaluation

C. Storyboarding Phase

This phase defined storyboard writing of the approved raw contents to be a MOOC in Bilgeleş project. Like scenario writing for a movie, SWT tried to simulate each screen of the MOOCs in storyboards. Mainly SWT, particularly CT and QAT planned and suggested some interaction types, decided feedback styles, defined motivational factors,

choose the best-fitted production technology, showed the visual design of screens by revising the raw content. For instance, in the content development meetings, the teams always argued what should be the best option for a MOOC learner, how the equipment and tools to be learned should be presented practically in the current conditions.

All participants of the meeting reflected their concerns about this (Arduino programming) course since this course is very technical and detailed. It was discussed that in which ways target group could use such a technical course. Also, it is not possible to apply this course for the participants without having an Arduino kit. A SWT member suggested that if all course could be designed as a video since there was no chance that all participants could have an Arduino kit (Content Development Meeting Minutes).

By deriving from the arguments of the experts, possible learner opinions, the innovative method suggestions, the MOOC literature findings, need analysis study results, and the circumstances of the project, some principles were incubated in the practitioners' minds. So, to clarify storyboards by pointing out the teaching approaches with all instructional elements and therefore approving a storyboard for production were crucial in the ID process. During the project, QAT and CT read the storyboards of SWT members in the testing part and requested many revisions due to the approved raw content, their understandings, perceptions, and imaginations about the final situation of the course. In this phase, generally, all team members tried to be on the same page in case of wrong or deficient production of the different course elements.

As positive factors of this phase (*see Table 4.7*), three themes emerged from the analysis: 1. *Enablers of the storyboard writing process*, 2. *Desired instructional strategy*, and 3. *Improvements in Revisions*. These themes basically reflected what worked and what helped them for the more effective design phase.

Table 4.7 *Positive factors of Storyboarding*

	Theme	Code
C. Storyboarding	1. Enablers of the storyboard writing process (13)	1.1. Quality of raw content (4)
		1.2. Cooperative working with SMEs (3)
		1.3. SWT's know-how on production technology (3)
		1.4. Brainstorming on storyboards (3)
	2. Desired instructional strategy (36)	2.1. Instructional needs-oriented (4)
		2.2. Fairly human presence (5)
		2.3. More problems, more solutions (6)
		2.4. More simple, less complicated (6)
		2.5. More procedural, less conceptual (4)
		2.6. More practical, less theoretical (3)
		2.7. More interactivity, more variety (4)
		2.8. More visualization, less wordiness (4)
	3.Improvements on revisions (35)	3.1. Iterative cycles (9)
		3.2. Creating standards on storyboards (3)
		3.3. Double-sided testing (9)
		3.4. The experience and know-how of the testers (14)

Theme 1. Enablers of storyboard writing process

The theme Enablers of the storyboard writing process can be identified as the backbone of the whole ID process since they have crucial relations with the other dynamics and dimensions of the phases. One of the QAT explained this important mission like that:

I30: To bring, let us say a book, into a form of instructional design or into an online-teaching material, one of the important factors is scenario which affects the production and the result (QAT3).

The Innovative Method Report, which included the essential components and definitions, played a part in the content development process, storyboarding was described as follows:

Storyboarding: It means the storyboarding work to be conducted by taking various learning methodologies as the basis and by taking the subject, target user, and the objective of the training into consideration. During the storyboarding phase, a visual/educational work that is close to the final product is conducted by dealing with the screens one by one and deciding for each screen the methods for presenting the information (animation, simulation, video, text with graphics, etc.) (Innovative Method Report).

Regarding the storyboarding of pdMOOCs, there are sub-factors generating the storyboarding phase in terms of efficiency and healthy implementation: *1. Raw content quality, 2. Cooperative working with SMEs, 3. SWT's know-how on production, and 4. Brainstorming on storyboards.*

Raw content quality (4)

Based on observations and interview results, there were usually some arguments about the quality of raw content during the project lifetime. So this code can be seen as an enabler and helper for storyboarding and meanwhile design and the whole ID phase. The following quotations from interviews and documents focused on the storyboarding time and easiness.

I31: If suitable content for e-Learning is presented, things get easier in the process of scenario (QAT2).

The raw content already includes many examples, interactivity ideas and scenario explanations so that the storyboarding process can be shorter (2. Interim Report).

Cooperative working with SME (3)

Since every pdMOOC has a different topic and content cover several professions, SWT members from different companies and institutions declared they need guidance about the content in the project process, even the content approved. So, they tried to reach SMEs via phone /e-mail or meet them f2f or on an online platform. It was observed that If SMEs and SWT worked together for a storyboard, then SWT, CT, and QAT felt more satisfied with the quality of pdMOOC. Moreover, when course documents were examined, it was detected that the number of content problems decreased in these kinds of cooperatively worked storyboards.

I32: When I asked those around me about who deals with drones, we found someone giving a course about the drones. Be sure that we had four meetings with that person. Not only did I attend the meeting by myself but also with my team. We went over the raw content text with him. We realized that we should have made some changes in the subject matters under discussion, that is, the content. We turned back and explained it to the developer of the raw content, and he found us right. If we had not done the research, we might have done mis-production on the raw content along with the storyboard (SWTDT3).

As seen in the quote above, one of the developments and storyboard writer expert the importance of this cooperation, also believe that the storyboarding process should be conducted by the cooperative working of SMEs, designers, and producers.

SWT's know-how on production technology (3)

Although this code seems to have very few frequencies in the interview results, it was very popular on the course feedbacks and comments in the meetings. Not only SWT but also all QAT and CT members should be knowledgeable about production technology

since they can suggest some revisions and requests regarding the capability of the software. The following quotation belongs to one of the QAT members highlighted the *SWT's know-how* as an enabler in the process.

I33: [The one who creates the storyboard] should know about what could be done with “unity,” and should be informed about the course beforehand e.g., this course will be implemented using this framework or such kind of SCORM package will show up. Knowing this make you effective even in scenario phase (QAT3).

Brainstorming on storyboards (3)

Every member of the teams stated that the different views of their colleagues were crucial and useful in the storyboarding phase when they were explaining the enablers of the storyboarding process in the workshops and meetings. Especially, writing the storyboard is a concentrated process that should have creativity, different perspectives, clear examples, etc. So, the following quotations can be an example of that brainstorming makes easier some decisions, and it can make understandable some examples, etc.

I34: There are no such things as rules here. For instance, it is not like “if you give this example, it would be better” or “if you give this example in this subject, it would be better”. Yes, he will give an example on that topic but it needs some different voices heard for the example to be the best (SWT_DT3).

I35: Since you address to a big audience including a variety, it is essential that you make them look from other perspectives even though you were a small group. Definitely make them look from other viewpoints otherwise you remain stuck in the world of the one who prepares the raw content. You really feel stuck in (PMT3).

Theme 2. Desired Instructional Strategy

The second theme of this phase is about the instructional strategy in Bilgeİş pdMOOCs. The practitioners generally declared that they satisfied the courses’ instructional design quality as in the following PMT member’s expressions:

I36: We can claim that the courses are quite strong in terms of instructional design and measurement. Everything we acquired under the title of instructional design principles is implemented when we look at these courses (PMT2).

After the project development process ended, the practitioners of CT declared that the instructional approach of Bilgeİş pdMOOCs resembled some main features of minimalistic instructional theory, procedural learning, problem-based learning, informal learning, and so they evaluated this situation like a pro for both learners and instructional design of the courses.

Instructional Strategy: Instructional strategy for Bilgeİş MOOCs is based on principles of informal and procedure learning since the target group's needs are more compatible with this type of learning. For instance, the steps of the procedures in a MOOC are provided to learners, and by doing so, learners experience and try procedures to improve their competence. It is possible to say that Bilgeİş MOOC design approach is matched more with the Minimalistic Instructional approach (Carroll, 1990). For instance, providing on the job examples, supporting the learners' goal-directed activities and presenting self-contained units can be accounted for highlights of the Bilgeİş MOOCs (Esfer & Cagiltay, 2018, p.179).

As categorized in *Chapter 2*, there are four types of courses: Pilot pdMOOCs (10), social skills-oriented pdMOOCs (15), high-quality pdMOOCs (11), and the other ICT oriented (64) ones. Of course, it would not reflect the fact if someone could say all 100 pdMOOCs had the same or very similar instructional framework. However, the practitioners deduced some useful tips, no written rules, models for the ID of pdMOOCs by deriving from the formative cycles and their experiences.

So, it was possible to assert that there were some principles for the desired instructional strategy in the storyboarding phase, such as the following codes: *1. Instructional needs-oriented, 2. Fairly human presence, 3. More problems, more solutions, 4. More simple, less complex 5. More procedural, less conceptual, 6. More practical, less theoretical, 7. More interactivity, more variety, and 8. More visualization, less wordiness.*

Instructional needs-oriented (4)

The first issue that positively affected the perceptions of the practitioners was the pdMOOCs were prepared by considering the instructional needs of the target group. Every example and expressions in the courses were served to the aim of “format the raw content to a useful and motivator content for a distance learner”. One of the APS member emphasized the importance of need-oriented instruction by an example:

I37: Were they the worst courses or were they far from the best ones? No. I think that not only is the way the course designed but also the content of the course determines the best example. For example, when Youtube is visited, the most-watched video may likely be the one explaining how to devise the video print excel formula. Its subtitles are most probably in Turkish. Since everybody needs it, that content is important. Similarly, for these courses, how they are prepared in terms of design and how appealing the design is are an important factor in terms of success of the course but how important the content is for the target group is equally a significant factor (APS1).

I38: It would not have been correct to approach to them from a constructivist perspective. It would also have been unnecessary. It would not have also been appropriate for that target group to say that “okay, you can do it yourself and you already have the inner motivation in yourself to learn this.” Such approaches would have bored them. It would not have received much attention. It is good that it serves an aim (QAT4).

Fairly human presence (7)



Figure 4.2. Screenshots from the pdMOOCs

Fairly human presence code resembles that there were real persons as instructors or narrators in the pdMOOCs and this as identified as one of the good features of the courses by the practitioners (*See Figure 4.2*). Although they are not the SMEs of the courses, they played the SME role, and so human touch was provided. In this manner, to be realistic and not to have some distractors (in terms of gestic, language, etc.) was very demanding. By the extension of Actor/Actress team, a more positive attitude to this feature was developed.

Problem: Actor/actress expression and body language problems in the recordings. Solution: Actor/Actress team has been extended (1. Interim Report).

The following examples clarified the human presence issue like that:

I39: It is important to attract the attention of the participants and to maintain it by the content and activities without or with fairly small human presence (PMT1).

I40: It adds the course a very professional dimension. Someone covers the course in such a smooth way. In other words, he does not teach as I do (DT1).

I41: It is really hard to see the instructor's own teaching on Coursera, especially in the programming courses. The screen appears and it starts to be written as the voice of the instructor comes from behind because it must have been transcribed what he would expressed beforehand. The same holds true for us as well. Raw means transcribed. You only see the instructor when the chapter ends while saying "now, let us move onto this topic if you like." The screen immediately turns black again. As the instructor writes, the screen deletes when s/he makes mistakes or it has been already edited in the video and we do not see it anymore. When s/he encounters something, the screen comes and goes. S/he says, "Oh yes, Now I have solved it. Here is the answer," because this is the way of tutorial teaching (CT3).

More problems, more solutions (6)

The code reflects that the Bilgeİş pdMOOCs include problematic situation examples as much as possible in line with the course objectives. Also, since the instructional goals of the course served as the solutions to the problems, the learners may follow the steps to solve the problem. It was considered that the various problems for different areas in the content were real-life problems from the workplace and daily routines, etc.

It was agreed that examples of scenarios should not cover a specific profession; examples of scenarios should cover different sectors and targeted to reflect the end-user real-life (Storyboarding Meeting Minutes).

The practitioners claimed that the instructional strategy of the courses showed some basic features of problem-based learning since the contents have problems at the beginning of the course and steps for the solutions.

I42: We, for instance, slipped a little bit into problem-based learning. In general, it was like that: ours was also similar because it was directed to solve a problem or to aid it such as satisfying SMEs' needs. When there is a question in SMEs' mind, a solution comes up in any topic, of course it may function to aid them develop themselves. Starting with problem solving, we proceed with procedural learning. The aim is to respond to the question in the mind (CT3).

More Simple, less complicated (6)

The simplicity mentioned in the code is about the physical and logical format of the pdMOOCs. So, simplicity was not regarded just in the language expressions, visuals, or examples, but also dividing content into meaningful parts, providing necessity summarization, or facilitation of the content format with schemas were pointed out. Some examples are presented in the following document parts.

Another feature of the Bilgeİş MOOC content is they can be completed in 2 or 3 hours due to their simplified content (Esfer & Cagiltay, 2018, p.179).

Participants made a long discussion about the content of the 3rd and 4th parts. After that, it was decided to revise those parts in order to make them more simple (4. Weekly Meeting Minutes)

We should focus on helping learners and avoiding unnecessary actions/clicks. For assignments, please insert instructions – given as word documents now and causing misunderstanding – as descriptions (21.07.2016 Initial Portal Comments).

The interview results showed that this kind of simplification strategies might help possible learners.

I43: For instance, indicating those expressions, we said that “you kept this section too long. If we look at the subject as a whole, this part seems quite excessive.” Our education technologists did a great job there. In fact, we directed them with some slight comments and questions: How important is this issue if we look at the whole? There are lots of papers written for this part, shall we summarize it a little bit? Or, that question is not that much suitable since we got the questions from the person preparing the raw content. What can we do, shall we ask another one? Or, most of the questions are multiple choice, but shall we put some true/false questions, what do you think? (SWT_PT_1)

More procedural, less conceptual (4)

Based on the interview results, observations and decisions, the majority of Bilgeİş pdMOOCs can be seen as the outputs of the analysis related to the procedural learning approach. Because from the beginning of the project, procedural learning was one of the most stated instructional strategies and led the ID process.

PMT stated that the approach of presenting the menus of the software is not a good approach. It should be presented through examples and exercises. Participants learn it through a practical way (Content development Meeting Minutes).

One of the CT members explained this issue while answering the positive affected factors related interview questions:

I44: Therefore, it is a little informative and a little procedural. There are some processes such as guiding – nowadays it is so but it was not like a Youtube video, as I said before. It is also nice that it is not like them. It is good that it serves a purpose (QAT4).

I45: We were saying that we would teach procedures here so we should have adopted procedural learning. It has always been there in our minds already. We require solutions to contribute to the people’s jobs in the form of on-the-job trainings such as explaining them how to do this, not by just explaining the concepts. That was why, we had already put that as a method at the beginning (CT2).

More practical, less theoretical (3)

Different from the previous code, especially CT asserted that if the instructional strategy was more practical oriented, then the course examples, applications, suggested studies,

simulations, or assessments would be more useful and qualified in pdMOOCs. Therefore, during the project lifetime, as generally observed, the focus on being more practical in the ID was regarded as a positive factor by the practitioners.

It was discussed that CT requires a more practical approach for the contents (Content Development Meeting Minutes).

I46: It is like the Turkish saying: Do not ask the doctor, ask the one suffering from. Here, we always tried to proceed by practices. Have something make the life easier as well as make them practice in life. Therefore, our emphasis was always on that direction (CT2).

More interactivity, more variety (4)

Generally, providing interactivity and presenting various interactive elements was difficult in the pdMOOCs. However, though to many technical limitations of the MOOC portal, the practitioners tended to create more interactive screens and more instructional elements, including interaction for learners. In the Innovative Method Report, “interaction” has been defined in the following statement:

Interaction: It means various activities (clicks, drag-and-drop, question, stop/play buttons, etc.) that will enable the user to proceed in the training interactively... It is important to emphasize the need of the interactivity of the content itself. By studying content, learner is active in a way that content design defined. There are many types of interactive content: assessments & personality tests, calculators, knowledge tests & quizzes, polls & surveys, interactive white paper, interactive infographic, contests & sweepstakes, brackets, galleries, interactive video, interactive simulation, etc. (Innovative Method Document).

One member of SWT drew attention to the interactivity, which provides dynamism to the courses, while she was explaining the most useful aspects of Bilgeİş pdMOOCs.

I47: It is constituted of neither just expert videos nor just animation videos. The videos were placed accordingly and there was a way of teaching which did not bore the users. The interactions in between kept the learning dynamic (SWT4).

More visualization, less wordiness (4)

More visualization, less wordiness code is similar to the all previous codes in the desired instructional strategy theme, in terms of all of them were regarded “utility”. When simulations, 3D models, gamification, feedback supported instructional games, and branched were preferred in the course design, practitioners’ attitude was seemed to be done more realistic and useful works for learners.

I48: I prepared such three-dimensional products as a camera rotates around the table, showing it from every side and where to put what (SME_SWT_PT_1).

I49: For instance, our friends have quickly established a game environment. Let us say one wants to cross the street but the pavement is not appropriate. He warns you, saying that “watch out! The pavement is not suitable.” You need to adjust the height of the pavement. He does not voice this to a handicapped individual but to the employer or to the responsible ones, but he calls out it in a very polite and gentle way, or you will not be able to cross. At that point you affirm it, and the concept settles down in your mind (SWT_PT_1).

As mentioned in the quote above, Accessible Workplace Design course has many simulation and gamification elements in order to visualize the information rather than presenting lots of paragraphs on the screen or lots of pdf documents, including some rules about the workplace design. So, though it is not an ICT related course, the instructional strategy of the mentioned course is still devoted to visualizing the information.

Theme 3: Improvements on Revisions

The third theme represents improvements on the feedback and the revision phase of storyboarding. The qualitative analysis results showed that one of the important enablers was the feedback provided by CT and QAT, as following SWT member’s expressions:

I50: The most important factor facilitating the process [of the storyboard] is feedback. The process is affected positively thanks to the feedback given constantly by the quality control team before the product reaches to the end-user. So does the course construction process (SWT3).

One of the minor improvements on revisions in the storyboarding was adding editorial control process to the project, however, the typos were still a huge problem in the test documents. So, it could not claim that there was a healthy redaction process but created minor improvements.

Problem: Frequent typos in scenarios. Solution: Editorial control process has been revised, and the resources have been enhanced. Scenario team has been extended (1. Interim report).

The theme contains four codes: *1. Iterative cycles with continuous feedbacks, 2. Creating some standards on storyboard reading, 3. Double-sided testing, 4. Experience and know-how of the testers* which reflect the improvements on revisions.

Iterative cycles (14)

One of the most mentioned issues of the positive dynamic factors of the storyboarding process, similar to the other revision phase, was iterative cycles of storyboards which

were full of feedbacks in the numerous versions of the documents. Providing feedback for each screen, each text, instructional element, interaction type, etc., was really difficult and challenging for CT and QAT. Also, there was also ongoing debates within the SWT and DT based on the possibility of storyboards turning into a MOOC.

I51: It is fairly essential that from the viewpoint of the scenario, the quality assurance team catches the point being overlooked or realizes the points that we do not want to display to the end-user. Thanks to the feedback provided by the quality assurance team, the inspection and regulation phases before the production progress in a much healthier way (SWT3).

As can be seen in the following screenshots (*Figure 4.3 and Figure 4.4*) of Leadership storyboards, QAT and CT commented and gave feedbacks in the revision phase. Then, SWT and CT reexamined the revised storyboards in order to meet the requests in the comments. So, the teams tried to make it better, more understandable, and applicable storyboards. This process created iterative cycles.



Figure 4.3. A screenshot from the Leadership course storyboard

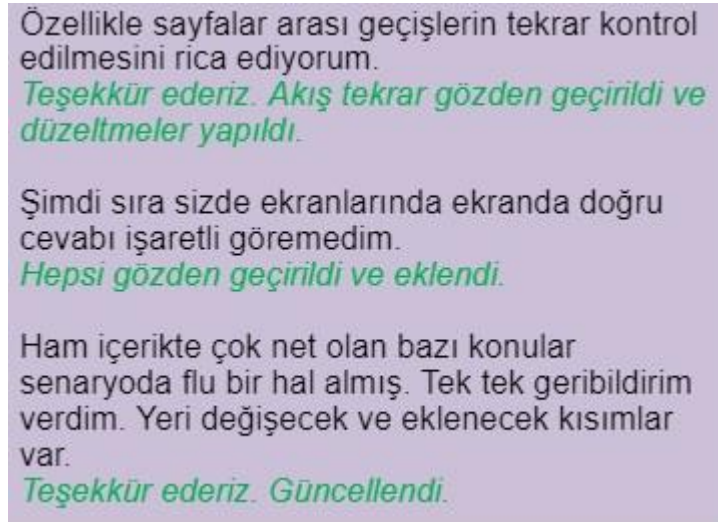


Figure 4.4. A screenshot from the Leadership course storyboard comments

Creating standards on storyboard reading (9)

After long debates on the meetings and emails, a storyboard reading guide was composed of SWT to be on the same page when interpreting and imagining the scenarios. The practitioners generally found the document useful for the revision process, and also, they stated some standards emerged with the explanations of interactions and methods.

IS2: The thing that I examine now, the document in the drive, incorporates the details about how the storyboard is read. Those yellow, green, and orange things... They became very useful in understanding the system there. It seems rather unimportant but it supports the people at the same time. If it were not present, I would have struggled or asked someone else. It aided me at that point (CT1).

Besides, storyboard meetings were conducted by PMT to ensure the teams fix some issues by creating rules.

SWT showed a sample of google drive scenarios (storyboard) developed in PowerPoint. Learning objects would contain a zoom in /zoom out features and would be made more attractive in terms of graphical appearance. Videos also would have pop-up questions in it and, after answering questions, feedback will be provided by the system in any case: correct or incorrect answer (14.01.2016 Storyboard Meeting).

As it can be seen in Figure 4.5, the shapes and definitions created a common language that removed misconceptions and misusages related to storyboard terminology.

HOW TO READ STORYBOARD

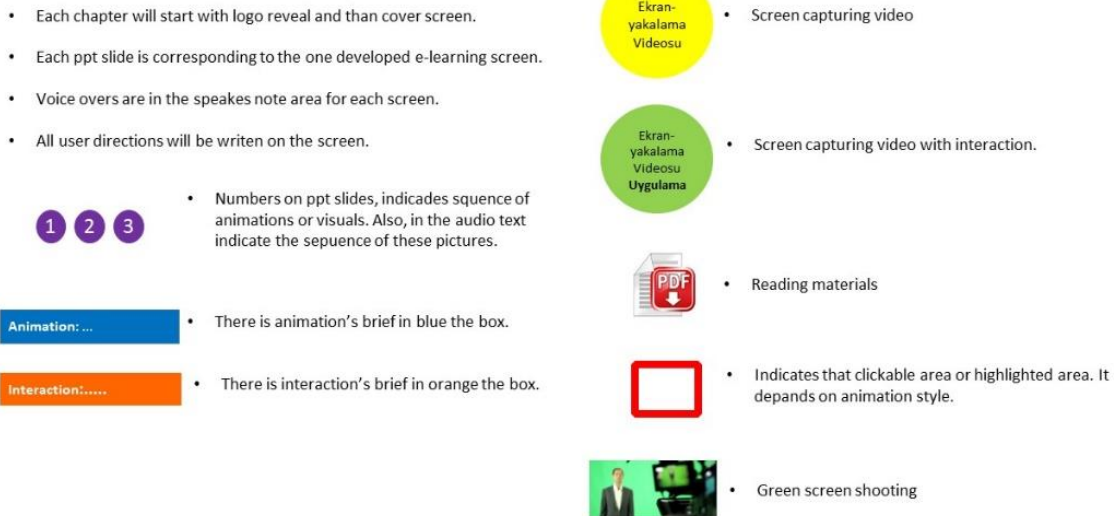


Figure 4.5. How to read SB Document

Double-sided testing (3)

While reading and testing the storyboards, objectivity, and clarity were challenging situations. CT and QAT tried to be objective, give feedbacks clearly, and make feasible and understandable revisions. So, if there were two eyes on a storyboard control, then the process was easier for the teams. A QAT member stated why double-sided testing is necessary:

I53: Right at that point, a double-perspective serves well. Of course, there should not be any bias. I was not prejudiced against you or the OCU step. When I work on anything in general, I do not shift my perspective to the person who finds my mistake, or diminish my self-esteem if my mistake is detected. Once such an atmosphere is created, I think that we have built it in this project, it would not cause any problem if some mistakes are found mutually, or somebody sees the thing the other has disregarded. However, we can claim that this also poses a serious problem for any project (QAT4).

Experience and know-how of the testers (9)

Storyboard testers were CT and QAT members and their know-how had a very important effect on storyboard quality. One of the SWT members asserted this issue as an enabler in the revision process while she was explaining the “what worked” from the aspect of her storyboard writing experience.

I54: Being fully-knowledgeable content-wise in the courses examined (SWT_PT_2).

Another SWT member and PMT2 clarified the issue:

I55: I think receiving the feedback constantly [from the expert] is a working mechanism. Meeting with someone who is experienced or professional definitely affects the process positively (SWT3).

I56: As a whole, that the department of Computer Education and Instructional Technology at METU is involved in the structure of the project and that the distinguished scholars in the field control the processes are significant. You may not be aware of it but you demonstrate that you exploit all these instructional principles in defining and operating the process. The feedback you give is not nonsense or sassy. You say that this can be better in this way or that way. Although you may state that in a rather polite way or unstressed manner, it is a requirement for teaching a course or actualize the design. Therefore, we can say that it is quite strong in terms of both instructional design and assessment (PMT2).

D. Production and Initial Testing

Production and initial evaluation steps were confluent in the Bilgeİş Project, which includes entwined cycles. Firstly, production includes all the creation and development phases after the storyboards have been approved, and it involves all issues to the initial testing process revisions ended. Production is the incorporation of course production and transferring the course parts (SCORM packages) to the portal, so the main characters of this phase are DT, QAT, and sometimes SWT members. After the storyboard approval period, some of the PT members began voice recording, video production, animation, game design, etc., and some of them write the related codes to merge all these course elements in the player designed for E-Learning Company.

I57: When we receive the storyboard and hand it to the production team, we do such things: Since there are voiceover texts in storyboard, we send it to the studio. They send us back the voiceover text as separate files. There are also visual images in the storyboard as you know. There are libraries. We draw and download them from the libraries and use them. There are some processes going on there. What does the production team do after that? They do a collage work which is quite important. If installations were described, then animations come up according to it (SWT_PT_1).

I58: There are so many people who worked there. There is a director of audiography, a director of photography, etc. In fact, we produce such works, too. We seem like we are producing films, the sentences in the audio, etc., all of them should be revised. Everything should be on storyboard so that they can be revised. Production is really like the fabrication part of it. What do you do in the production? You do collages. If you compose these pieces or those pieces, the audio files taken from the studio, and the visual images from library etc., you get the animations. Thus everything is settled down (PMT3).

While the course production software is mostly HTML5, some of the high-quality courses have been developed in Unity and H5P. So, it is possible to say different programs might have been created different dynamics in the production; however, generally, practitioners claimed that there are more significant issues affecting the healthy implementation of the courses than the production technology. When the

completed courses (SCORM packages) were ready, QAT and CT tested these course screens in a local platform whether the course was up to be a candidate MOOC considering the approved raw contents, approved storyboards, and the realization of the storyboards. In other words, the outputs of the production phase were only developed course screens on the SCORM packages, and they were not still regarded as candidate MOOCs. This process was explained in one of the meeting minutes by the PMT member. PMT_MT_2 mentioned all the processes of course development in the presentation. These processes are indicated as below;

Process of the Completed Courses:

- Producer company submits the course as a Completed course,
- QAT controls, (+MEE)
- CT controls,
- Producer company does the revisions.
- The course is submitted as Moodle Candidate.

Moodle Candidate Process:

- Producer company submits the course as a Moodle candidate course,
- QAT controls,
- CT controls,
- Course is submitted to producer company
- After the final revisions, producer company creates scorm packages.
- Scorm packages and additional materials are submitted to Moodle team.

Private Mode Process:

- Moodle team opens up course in Private Mode.
- QA team controls the course in Private mode.
- After the controls of QA team, to do list is submitted to producer company and Moodle team.
- Moodle team does the revisions.
- The course is checked by Help Line interns
- The course is submitted for approval of CT, after the approval...
- The course is brought to the end user.

Note: In the event that CT decides the course is not ready for Moodle, the course is revised by the Producer one more time (12. Monthly Meeting Minutes).

Secondly, initial testing can be seen as the last step for the ID process of pdMOOCs. Before the real participants of the MOOC Portal evaluated the courses, the practitioners constitute a long time required part which includes mini end-user tests like a beta test, project team members tests like alfa test with different test techniques such as black box and white box testing. Also, members of the Moodle management team run some performance tests to measure portal capacity and internet access, and some SME evaluate the courses regarding instructional quality. Some non-key experts of the project team made comparisons with specifications, do accessibility and usability tests in the initial

evaluation part of ID. QAT and CT contribute alfa tests, usability tests and evaluate the courses' instructional design quality. In the development phase, courses have not been examined in different browsers, platforms, and the portal. So, there was still an ongoing revision and feedback process among the phases.

As positive factors of this category, two themes emerged from the analysis: *1. Reformation on the pre-production process* and *2. Formative Evaluation of the ID process* (See Table 4.8).

Table 4.8 *Positive factors of Production and Initial Testing*

Themes	Codes
1.Reformation on pre-production process (19)	1.1. To be familiar with the production technology (4) 1.2. Proper storyboards (7) 1.3. Involvement of the SMEs (4) 1.4. Involvement of the SWT (4)
2.Formative evaluation of ID process (16)	1.1. Iterative testing (8) 1.2. Prioritization of the revision requests (3) 1.3. The support of CT (5)

4.2.1.1 Theme 1: Reformation on the pre-production process

All phases, cycles, processes, activities, tasks, and work packages were affected by the previous ones, and they have effects on next ones, it is possible to infer that this theme has emerged due to some positive effects of the previous times. When it was thought the MOOC creation process, this point resembles the production stands for like the outputs of analysis, raw contents, and storyboarding. Because it generally collapses understanding what is wanted and doing it by writing the right codes.

Problem: Subtitle problems in the interactive screens. Solution: The additional resource has been ensured for video duration.

Problem: Subtitles on the video. Solution: Player improvement is being finalized. It will be available in February (1. Interim Report).

One of the practitioners evaluated this integrated and comprehensive theme was the result of the previous ID cycles and its' effects on production phase and in the whole ID process as following:

I59: In fact, every job you did nurtures the next job; therefore, it is really important that the job is smooth, correct, appropriate, and understandable. Otherwise, your bleeding part enlarges. Thus I shall say: A rather smaller thing gets bigger and bigger so you end up with a problem something like a mountain. First, one must follow the steps; the things in the nature of this job are already quite clear. The phases are quite obvious. Firstly, there is a step in which the raw content is prepared; secondly, the storyboard step, and the production step as the third. We may think the reinforcement questions part is under the subheading of the production step. If you follow each step consistent in itself, it would function well, indeed, and you receive better results (SWTDT3).

To increase the quality of the production phase and relatively whole design process and procedures, the previous cycles related to 4 codes are presented in the following paragraphs: *1. Familiar with the production technology, 2. Clear Storyboards, 3. Involvement of the SMEs, and 4. Involvement of SWT.*

Familiar with the production technology (4)

As a result of the situation analysis studies which were conducted with E-learning company delegators in the meetings, some specific production technologies have already been chosen. Therefore, the teams were generally aware of the capabilities of the programs, tools, or technical framework that would use for video production, animation, visual design, or portal development. In the interviews, one member of SWT clearly stated that to be familiar with the production technology was an enabler, and PMT1 declared the same issue while talking about the general facilitators of the MOOC ID process.

I60: Being highly proficient at the technology of production (SWT1).

I61: Available technology, Popularity of MOOCs, MOOC portal, learning environment with its functionalities are the enablers(PMT1).

Clear Storyboards (5)

The clear term refers to easily understandable and applicable scenarios in this code. Since the technical teams that produce all audiovisual elements, design the screens on the programs, and transfer the SCORM packages to the Moodle were motivated for just do the desired thing by adhering specs.

I62: Think of the production team as a worker. Assume that there is routine job chain and the production team produces the product as quickly as possible. We have a very qualified production team behind. They provide us with valuable feedback such as “this visual image is not suitable for this” or “this sentence needs revising” etc. (SWTDT3).

As can be understood from the first statement of the quotation above, if the PT gets the clear demands, then it can devise, and also it can revise by questioning. Or another example for the important role of the scenarios on production can be seen from the following expressions of QAT2's:

I63: For instance, the raw content that I mentioned earlier passed quite hardly on [scenario step] but it passed quickly from [course production approval] because it became mature in the scenario (QAT2).

Moreover, it was observed that some documents prepared for scenario design helped the production phase.

Problem: Colour contradiction in the question feedback screens. Solution: Bilgeİş Production and Visual Standards document has been developed for frequently used screens (1. Interim Report)

Involvement of the SMEs (4)

Involvement of the SMEs to the scenario and production process was a very well-known issue for the quality of the course development. However, unfortunately, sometimes these crucial criteria were not possible for Bilgeİş pdMOOCs due to some organizational and SME related problems. So, if it was possible to study together with the SMEs in production times, then the practitioners could produce more reliable instructional elements. In other words, if SMEs can observe and understand how the production process goes on, then they can write more proper contents for MOOCs.

I64: It would provide great benefit for the SME to see the production. This way s/he can present course-content accordingly, knowing how s/he could teach (QAT3).

I65: I believe that meeting with the writer, or, at least, receiving necessary technical information about the subject constitutes a critical point in process of course production (SWT3).

Involvement of the SWT (4)

Similar to the SME related code, involvement of the SWT members to the production process was carried out. The practitioners claimed that this cooperative study was an enabler to produce more qualified elements.

I66: It is like this: the raw content expert writes the subject and sends it to the scenario writer. There are such scenario writers who are not proficient on the subject because s/he is just a scenario writer. It should

not be like this. If the scenario writers do not know the topic, they should work with the raw content expert. We did this in order to improve the process. After I attended the project, I told the subject matter experts that we would need them in the steps of scenario and production. I also said that their support will continue until the course will be produced (PMT2).

Theme 2. Formative Evaluation of the ID process

From a very general perspective, since formative evaluation can provide quick feedbacks, the practitioners choose this evaluation type and getting feedbacks for this every output, every process and every strategy was possible in the Bilgeİş project. Sometimes, all strategies, designs, elements, including the organizational issues, made the team members feel more comfortable due to the advantage of making mutual decisions, being aware of the details of the work, observing the cause-effect relation.

Following excerpt summarizes the general viewpoint of the producers:

I67: The things should be done should be done, and after that, the next step should be proceeded to. Everything should be handed in the responsible people as complete. If we come to your inquiry as to what happens then, it becomes very easy to look over it. Why does it become easy? In fact, when you undergo that process, what will come out is composed at the back. It is actually present in your imagination. What do you do? You open up the storyboard. Actually, our test team works in that way. We go over the things that production team prepared to see whether the thing in storyboard was produced exactly. We also approach it in this way: “Yes, although it is expressed in this way in the storyboard, it can be that way.” We take notes including our suggestions and comments such as “would it better if we could do it this way?” (DT3).

Moreover, another positive aspect of testing and revising the issue was conducting a lot of pilot implementation and determining the problems before end-user tests via CT, QAT, and a tester group, which includes ten university students.

I68: Since the team tests as if they were the end-users in terms of portal, they can detect possible problems beforehand. These problems are surmounted before they reach the end-user. Therefore, the process is affected positively. Moreover, that the course content is controlled before it reaches to the end-user effects the process positively (SWT3).

I69: It is quite important to control the whole process in terms of the course, because, basically, while a team experiences just a single point in the whole process, the quality assurance team has the opportunity to observe all the processes. Since they provide the required regulations and supports with us, the process is affected positively (DT3).

Connected with the mentioned iterative processes, there were 3 codes about Formative Evaluation of ID process: *1. Iterative testing, 2. Prioritization of the revision requests, and 3. The support of CT Testers.*

Iterative testing (11)

Iterative testing provided lots of advantages though this method was very time consuming for all team members. Being of QAT and CT on every phase of MOOC development enabled testing and revising.

I70: That the quality assurance team controls the whole processes till the course production step facilitates the process, of course, (SWT3).

I71: If we submit it to the end-user on our own, we evaluate it directly with the end-user. We have such notes as “what do you think?” because his/her approval is also essential for us (DT3).

Prioritization of the revision requests (3)

Categorizing the revision requests made the testing and revising works clearer and understandable for all teams. After the long discussions at the meetings, the teams concluded that this prioritization would be helpful for time management and meeting the revision requests. In order to clarify the prioritization issue, which revision requests refer which number category was presented in the following table was created by combining the 6. Weekly meeting minutes and PM presentation (*29.12.2016 PM presentation*) notes (See Table 4.9).

PMT explained the review projects by charts and stated that once the 45 of the 60 revisions given are implemented properly, it deserves appreciation in the name of facilitating the communication and the negotiation between the parties. For the revision with 15 topics that could not be implemented, she said that an action should be taken considering at which point it increases the quality of the emerging course and as well considering the time/cost calculation (Course Development Meeting Minutes).

After the first revision given to the product, another revision will be provided to look over the compulsory and basic mistakes. When the comments are transferred to the E-Learning Company, the ones which are applied and not applied must be identified as soon as possible and notified to the CT. (Course Production Planning Workshop).

Table 4.9 *Revision Management*

Items	Descriptions
Applicable revision items	Punctuations (point, comma etc.)
	Correction of incoherency that affects the understandability of the subject
	Functions that do not work on screens
	Fixing the functions that are determined as defective
	Editing the items that have a significant impact on the readability of the screens
Revision items to be evaluated during production	Subtitle - Screen synchronization errors
	Screen elimination (if it does not affect streaming and other screens)
	Increasing the visual support
	Changes in user rights related to the questions and interactions
	Changing the name of the course
Risky Revision Items	Changes that affecting all voiceover
	New screen addition
	Changes in audio text originating from raw content changes
	Raw content changes
	Removing and adding characters
	Additional green screen shooting
	Additional screen capture videos
	Dividing the produced course to separate chapters
	Cartoon character movements

As an example, from the interviews, one of QAT member found this prioritization strategy helper for general testing-revising process. However, the researcher noted that these revision requests could be categorized more differently since still, it might create pleasure for CT.

I72: The company, in fact, had a positive attitude. They did not receive and go over the list superficially. Rather, they followed a qualified management procedure and controlled each item very carefully. When they caught a conflict, they went deeper into it. After everything was clarified, they said they could do this and could not do that. Then the company started doing it, and everything they specified was completed within three days (QAT4).

The support of CT (6)

The following two quotations revealed the support of CT in terms of guidance while they were testing and revising the course components in the initial testing phase. Since sometimes they suggested a more practical way or a formula for course problems, the other team members declared the pleasure of their supportive comments and attitude.

I73: CT team knows the subject in terms of its technical qualities. In other words, the CT team has its own know-how so I think it made the job much easier. The CT team is familiar with Moodle and content. It is a team that writes scenarios. Thus, their previous experiences made the process easier (QAT1).

I74: I wholeheartedly believe that the team checking the course [Coordination Team] had a positive influence on the process. The team, in general, pays attention to the topics such as design principles, user experiences, and accessibility. Thanks to the feedback given by them, our documents improve and reach a better point (SWT3).

E. Organizational Issues

This part covers all outside issues, which could affect the operations, process, phases, or team members' attitude etc. When it is thought that all factors except the ID phases (Analysis, Raw content preparation, Storyboarding, Production, Testing, and revising), there could be several issues like communication, budget, socio-cultural time planning, promotional activities of the project and type of project grant etc.). One of SWT member summarized some positive factors while trying to identify what helped them in overall project process:

I75: A strong team leader, qualified staff, and a well-planned project process (SWT2).

As enablers and facilitators of this part, 4 themes emerged from the analysis: 1. *Improvements in Project Management*, 2. *Standardized Quality Management*, 3. *Effective Organizational Communication*, and 4. *High Motivation* (See Table 4.10).

Table 4.10 *Positive factors of Organizational Issues*

	Theme	Code
E. Organizational Issues	1. Improvements in Project Management (9)	1.1. Networking skills of PMT (3) 1.2. Outsourcing and expanding the teams (6)
	2. Standardized Quality Management (24)	2.1. The existence of the QAT (8) 2.2. Experience of QAT (4) 2.3. Presence on every phase of ID (3) 2.4. Preparing rubrics for ID Process (6) 2.5. The objectivity of QAT (3)
	3. Effective Organizational Communication (40)	3.1. Open communication (11) 3.2. Common language (7) 3.3. Effective meetings (13) 3.4. Collaborative working (9)
	4. High Motivation (20)	4.1. Usefulness sense for society (3) 4.2. Dedication (7) 4.3. Team leader's approach (5) 4.4. Prestigious University's project (3) 4.5. The uniqueness of the Project (2)

Theme 1. Improvements in Project Management

As known, project management focuses on planning, organizing, procuring and managing all kind of resources to achieve the project objectives. So, if there is successful project management in the project, there should be a balance of budget-time-scope triangle and also successful risk management, quality management, human resources management, etc. Moreover, the outputs of the project include many clues about project management. There were several changes and distinctness on project management from the beginning of the project to the last day. Similar to ID phases, project management strategies have also formatted and revised based on needs and circumstances. Sometimes, like every project, Bilgeİş also experienced nonconscious or unexpected cases. In a general manner, the practitioners perceived if needed improvements could be done, that the works could be better. *Table 4.11* shows project problems and actions which provided by Final Report.

I76: It can be claimed that this project has achieved innovative method in production processes, considering the duration, the budget, and the number of the courses to be completed. Looking at the duration the first ten courses are developed, the production team was able to adjust itself according to the new demands and expectations for the remaining courses, and was able to complete the project (SWT1).

The following table from the Final report and course production meeting minutes can show some actions done by PMT to improve their own project management process and ID phases.

Action Item: Production plan will be updated. First of all, the dates of raw content will be updated, then E-Learning company will update the dates of the production, and Production plan will be revised as all the parties agree.

Table 4.11 *Problems & Actions (Final Report)*

Phase	Problems	Action
Raw Content	Finding proficient experts	Criteria were identified for expert election. SMEs and experts having academic studies and actively working in the field were preferred. Consultancy service is gotten.
Raw Content	Inadequate examples for raw content	Extra examples in contents were multiplied.
Raw Content	Formatting and language mistakes in questions	A Measurement and Assessment expert was included into the process.
Raw Content/ Scenario	Lack of quality controlling in raw content and scenario	Quality Assurance Team was enlarged.
Scenario	Frequent language mistakes in scenarios	Editorial controlling process was revised and fund transfer was actualized. Scenario crew was enlarged.
Production	Pronunciation and body language problems in video shootings	Performer's scope was widened.
Production	Excessive amount of revisions	Revision management process was improved. Quality Assurance Team was enlarged.
Production	Color inconsistencies in question feedback screens	For frequently used screens, Bilgeleş production and Visual standards were documented.
Production	Subtitles problems in interactive screens	Extra resource was provided for video duration.
Production	Appearance of subtitles over the video	Player development approaches to the end. It will be online in February.
Production	Working faultless in different scanners	A statement on user needs will be added to Moodle.

There were 2 codes associated with the improvements in project management: 1. *Networking skills of PMT* and 2. *Outsourcing and expanding the teams*.

Networking Skills of PMT (3)

3 comments of project practitioners revealed that PMT's networking skills as a facilitator for the project and the quality of the project outputs.

I77: If you have a widespread network, you can present the solutions through them. Or, you know more or less who can find the solutions (CT2).

The improvements and accelerations on the production of MOOCs can be also seen in the following table (See Table 4.12) by comparing the dates and numbers. It was obvious the PMT strategy which was based on networking for outsourcing affected the time of course design process and all actions in this manner helped the project success like

expanding the number of practitioners and relatively accessing more experts for time-saving.

Table 4.12 *Comparison of course production processes*

Phase	29.12.2016	18.01.2017	22.02.2017	24.03.2017	Not finished
Approved Raw Content	71	77	85	93	7
Approved Storyboard	39	48	58	68	32
Storyboards-in progress	27	25	28	25	-
Candidate MOOC	19	25	30	37	63
Revised MOOC	16	22	26	36	74
Approved MOOC (on Portal)	10	10	11	19	81

Outsourcing and expanding the teams (6)

Similar to the previous code, PMT networking skills made easier to access experts and firms and then outsourcing facilitated the production of many simultaneous lessons towards the late times of the project. PMT has declared the outsourcing was a solution for many problems in the Final Report and detected the first strategy of course planning was not good enough by comparing 1. Weekly Meeting Minutes:

10 Predetermined Courses SWT and PT made a presentation explaining the content development process in E-Learning Company. 12-15 people will work for this part, and 7500 screens will be produced and 9-10 hours videos will be uploaded according to their presentation (1. Weekly Meeting Minutes).

Looking at the problems encountered in the Project, it is seen that the most important element is the competent and adequate team. When this problem is detected in the project, all teams are increased concerning numbers. The PT has been expanded in order to speed up the course production process. Agreements have been made with different vendors for the production of different courses and their smooth mobilisation have ensured (Final Report).

Theme 2. Standardized Quality Management

Unfortunately, there was not a team for quality assurance from the beginning of the project. So, the practitioners defined the existence of one QAT member and the team as a facilitator when the team was created. At first, there was just one person who was responsible for all quality assurance works, then three members and an MEE were

included. Therefore, a standardized quality management process was defined as a common and collaborative working of the team.

Deviations from the dates of publishing the courses: “In order to accelerate the process, the quality control team has been expanded, and new experts have been mobilised to the Technical Assistance Team to work full-time in the Project Office (Final Report).

There were three codes related to standardized quality management: *1. The objectivity of QAT, 2. Experience of QAT and 3. Preparing rubrics for the ID Process.*

The objectivity of QAT (8)

It was crucial to provide objectivity while testing courses and writing feedbacks since sometimes their comments were bridges between CT and the other teams (SWT, PT, SMET) on course documents. QAT3 explained her/his own experiences related to being objective and the other people perceive this.

I78: I perused at the document with an objective eye and asked whether it really needed re-voicing. When I thought that it did not really need, I fought to the end and said I could not re-voice it even though it is “OCU” in front of me. However, on the contrary to this, there was a huge mistake in green screen shooting, it needed reshooting. It had such a pronunciation that the code would be misinterpreted. It was a small mistake but it would give an error in the code. At that point, I pressed to the company that it should have been reshot. This neutral position must have been perceived so that both the CT and the companies, I refer to all the companies without any exception, did whatever I said until the present moment. There has been nothing not done (QAT3).

A member of CT also declared the QAT’s existence facilitated the general process by implying to trust QAT’s testing.

I79: Having a quality assurance team is comforting with respect to the courses. That is, it partially gives comfort because they also have a look at them (CT5).

Experience of QAT (4)

The results revealed an expected factor, the professional experience of QAT made a more standardized quality assurance process in the project. QAT had both teaching and developing instructional material for the distance learning experience; also, they enabled customer communication based on their private sector experience. So, 4 of the interviewers focused on the experience factor of QAT, but mainly course documents could be another evidence for this code.

I80: You know that teaching is a different concept, that is, it is nothing to do with knowing but teaching. For example, I know that I interfere a lot into the content in the courses like programming or other similar courses. Because of my profession, I intuitively transfer my experience such as “it is explained with this example, or this example should be placed here.” I say, for instance, if a function is defined, we liken the function to a subcontractor worker – we constantly call for him to make him work. I give such examples in my own classroom as well. We were thinking to put it here. This is also one of the significant characteristics of a teaching technologist (QAT3).

Preparing documents for ID Process (6)

Views of project practitioners showed that QAT’s preparations for documentation were helpful. With the support of CT comments, there some important standards started to form, and at the end of the project, some ID process documents (rubrics, forms, principles, process identifications, etc.) were ready for the next courses. One of the SWT members stated these documents helped them to decide on a screen.

I81: Some of the identified standards shorten the decision-making process for relevant screen in some possible circumstances (SWT1).

I82: As for my own account, the last level that we have reached now is quite satisfactory. If we were able to plan clearly at the beginning, we would not have spent the time in vain until this phase (QAT4).

Theme 3. Effective Organizational Communication

Another organizational issue, effective organizational communication was one of the major dynamics that affected the ID process. The teams tried to find the best and effective ways to communicate by avoiding misunderstandings and misconceptions related to MOOC design. Based on observations, sometimes and for some people, written communication was foreground, while face to face meetings was always the most preferred way to communicate. On the other hand, depending on the topic and the importance of the topic, telephone meetings were easy for practitioners. One of SMET generally evaluated how effective communication affected them by an example:

I83: They communicated with us in a rather gentlemanly way, without hurting us where we were stuck in, and talking non-disturbingly, or they talked like this: “You did this but it would be great if you also could pay attention to this element.” We might do the similar mistake twice or thrice because it is a very complex environment; however, they did not even lose their temper at that moment, which was very valuable for us (SMET2).

In this theme, *1. Open communication, 2. Common Language, 3. Effective meetings, and 4. Collaborative Working* was determined to be the main codes during the interviews.

Open/effective communication (11)

This code stood for both between and within the teams and it was generally declared as an advantage for the project process. APS1 evaluated the Bilgeİş project and the other EU projects based on her/his experience and stated it was possible to ongoing and open communicate though some disagreements.

I84: As I always say, I think it is the communication problem. If I compare this to my previous projects, I can say that there was not, or, maybe, we cannot say none but the communication problem was at a minimum level. There were no such things as communication problems, poor communication, or indirect communication here. Both parties could express what they anticipated or what they meant, and finally a common ground was found though a little bit late, a common ground that is never found in other projects. Although simple in terms of structure, we had experienced huge and real communication problems in our previous projects. I re-tell that here I do not think that there is a serious communication problem, comparing it to other projects (APS1).

Another expression which obtained CT interview results implied open communication by stating “healthy” and focused on the communication within the team members first and between the teams.

I85: First, the communication among the group, and secondly, our communication with the others could be healthier, yet first of all, the communication between the group, because when we go there, we stay together as a team. They are more like a professional team, you know (CT1).

Using common language (7)

When all team members shared their experiences about the project organization and ID phases, they asserted the importance of using common language was one of the best enablers that they have. They (n=7) defined this issue as a success for the process.

I86: We worked with people who spoke the same language and who looked at from the same perspective. That was an enabler (QAT1).

I87: We could speak using the same terminology (SWT1).

Effective meetings (13)

For creating an easy decision-making mechanism for several complicated and unclear issue in the ID process, face to face meetings was a generally successful strategy to communicate. It helped the meeting participants in terms of giving an opportunity to explain themselves more clearly, and sometimes interactivity between the people brought solutions for some negative perceive men problems.

I88: I think that technically speaking, meetings were effective (APS1).

I89: The decisions taken face-to-face and targeted at the same point are the best and sustainable ones (SWT1).

I90: Things can be perceived differently in written language. It is beneficial not to lose contact with each other and keep talking to (QAT4).

As can be seen in the excerpts above, meetings could be beneficial for the different teams' perspective. Moreover, many documents served the necessity of meetings as a lesson learned for project organization and project outputs.

For achieving effective communication, regular management meetings and establishing daily communication would be most important (Interim Report).

Collaborative working (9)

The collaboration was a must for Bilgeİş, like many other projects which have integrated work packages or outputs. This issue was defined as “indispensable” in the final report:

For an Operation like this which encapsulates and foresees the participation of numerous parties into the implementation, effective coordination and cooperation between the key parties are indispensable (Final Report).

For Bilgeİş project case, several practitioners seemed to believe that they could work collaboratively and this was a really big advantage for the ID process.

I91: It was advantageous for me to have people who are proficient at the technical issues. Yes, the communication between us, the cooperation, and flexibility in asking question [were significant] (CT7).

I92: The factor facilitating the process from the viewpoint of the project was the integration between the teams. For example, a course that comes to the quality assurance at the first stage is discussed and arranged with them. After that, in the post-production phase it is re-discussed with the team and re-arranged accordingly. Separate and independent team work prolongs the process and makes it more difficult (SWT3).

Theme 4. High Motivation

Practitioners indicated that one of the major hindering factors was the high motivation of them although they don't always feel similarly. Generally, everybody in the project and stakeholders were highly motivated and proud of working in such an important project.

PM highlighted the importance of creating synergy among all interested parties as a team (5th MMM).

In this theme, five codes determined: 1. Usefulness sense for society, 2. Dedication, 3. *Team Leader's Approach*, 4. *Prestigious University's Project*, and 5. *The uniqueness of the Project*.

Usefulness Sense for Society (3)

An important reason for the high motivation of practitioners was the usefulness sense for society.

I93: To be able to teach motivated by thinking the hardships in the project and the teaching the objectives of the project for the SMEs (SWT1).

Especially after the teams had known the SMEs' opinions about the project, they got more motivated. One of the excerpts of need analysis interviews were presented to clarify why the teams felt like doing useful works for society.

I94: As a SME, I consider that this project, which provides an easy-access to high-quality trainings on many innovative subjects free of charge, as a development that will fill a very important gap. I benefited a lot from the presentations during the seminar. I was very interested in training modules such as wearable technology, and the use of social media in our business, which is up-to-date, mind-opening, and will make any SME different and improve his/her performance. Each of the 100 training programs, which will be prepared in a short time, is an important resource that I think many SMEs will apply and benefit from. Thank you very much to the team who prepared this project and invited us to the seminar (SME Employer)

Dedication (7)

Mostly stated reason for high motivation was dedicated working. Two explanatory statements related to dedication was presented in the following quotation:

I95: I was present in the project as the head. It is like your baby. You are being very sad (SME_SWT_PT_2).

I96: It was [important] that the team was decisive and acted as one (CT7).

Team Leader's Approach (5)

The other reason for highly motivated working was the CT leader's approach. The interviewees generally stated that the team leaders' approach enabled many things in the ID process. Because the management skills and attitude of CT leader made the members comfortable and self-confident. Based on observations, different members of different teams always declared that the CT leader created a positive, compromising, and free ambiance.

I97: It was primarily an enabler that there was a CT leader. We were relaxed in that respect. The opponents said that they learned a lot so I think it was good for them as well (CT4).

I98: If it were not a CT leader, the team could have been scattered (CT6).

Prestigious University's Project (3)

This code was generally declared as an advantage for a kind of MOOC Project. Because the prestige of METU affected the attitude and motivation of the practitioners, stakeholders, decision-makers and participants positively. Sometimes, the source of motivation was working for a METU Project by practitioners and stakeholders.

I99: METU could be the most important name there. Since it is the under the roof of METU, you do not need anything else. It is such a name that is not in the forward; METU moves forward. The people already have enough motivations for this (SME1).

The following quotations were coming from Steering Committee Meeting Minutes, which include all stakeholders' opinions in SWOT analysis.

The strength of Bilgeİş comes from the fact that it has CT behind as a guarantee of the courses (Steering Committee Meeting Report 1).

Bilgeİş e-learning platform by benefitting mostly from the visibility of METU brand (Steering Committee Meeting Report 2).

Also, the certificates of Bilgeis.net learners were also designed with METU Logo and rectorate signature by the awareness of the METU brand's importance and effect on earning a certificate (*See Figure 4.6*) from the platform.

Participants who complete e-courses, which are open to everyone, especially to employees and employers, free of charge, will be provided with a certificate of attendance signed by METU (Bilgeİş Booklet).



Figure 4.6. A sample certificate from bilgeis.net

The uniqueness of the Project (2)

One of the critical strengths of Bilgeiş Project as a motivational factor for both practitioners, evaluators, and possible learners was the uniqueness of the Project. The practitioners were seemed to be satisfied during the Project lifetime and after the courses released. When it came to the benefits of the Project, everybody assumed that this unique Project results also would be different from the other Project results since there was no similar MOOC platform in Turkey. One exemplary statement related to the uniqueness of the Project presented in the following quotation:

I100: First of all, just as we talked about it at the beginning of the project, this project is first in Turkey and has no other example in the world as we heard through your own experience. As far as I know, there were some other projects which were produced from the scratch and contained 5 or 10 courses. There were some that we ourselves did but I think this is the first time that we have come across with such as a huge scaled project. What is more, in terms of content, with its target audience, the topic, and the subjects of the courses, it is a very special project which aims to make an incredible contribution to the people and the companies. They are completely suitable for the technology of the future (PMT3).

Another document support for this code can be SWOT analysis study results which were placed in the Project documents and in the chapter of Creating a MOOC Portal for Workplace Learning in Digital Workplace Learning Book.

The most stated strength is that METU, as one of the most prestigious universities in Turkey, is the beneficiary and coordinator of the Project. Therefore, it means the possible participants' reliance on Bilgeiş MOOCs can be relatively high, and the certificates of attendance provided by Bilgeiş MOOC Portal can have the signature of the METU's president" (Esfer & Cagiltay, 2018).

4.2.2 Factors Affecting Negatively

Negative factors represent the barriers, challenges, limitations, difficulties, problems, etc. in the ID process of pdMOOCs. *Table 4.13* represents the relations between themes and codes such as a block, demotivator, destroyer, etc. Similarly, this table includes all stated phases of the ID process in 4.1. section. Also, trying to understand a theme/a code is not an individual effect on the process will help to clear up the complexity as in the positive factor part. As a big difference, the determined number of negative factors is much more than the positive ones. So, it is possible to claim the results stated in this part have generally emerged from most stated issues.

Table 4.13 *Negative Factors*

	Theme	Code
A. Analysis	1. Drawbacks of analysis studies (24)	1.1. Insufficiency of need analysis survey (6) 1.2. Planning barriers to identifying the instructional needs (10) 1.3. Limited contribution to the course design process (8)
	2. Pilot pdMOOCs' problems (48)	2.1. Troubles emerged from SME related issues (10) 2.2. No detailed plan and strategy for the ID process (10) 2.3. Struggling with how MOOCs to be tested (8) 2.4. Challenge of being on the same page (20)
B. Raw Content Preparation	1. Insufficient raw contents (73)	1.1. Improper translation of contents (14) 1.2. Rapid changes in IT-related contents (8) 1.3. Problems of soft skill related contents (3) 1.4. Contents without references (10) 1.5. Reliability of information (9) 1.6. The wide scope of the content (7) 1.7. The sequence of the content (4) 1.8. Typo and misspelling in the content (7) 1.9. Lack of extra course materials in the raw contents (6) 1.10. Measurement and evaluation problems (5)
	2. SME related troubles (65)	2.1. The difficulty of accessing to SMEs (16) 2.2. Challenge of preparing online course content (19) 2.3. Challenge of teaching experience (11) 2.4. Challenge of know-how (6) 2.5. Lack of an orientation process (13)
	3. Problems of revisions (22)	3.1. Insufficient quality Control (10) 3.2. Excessive feedback was given by CT (5) 3.3. No clear quality control standards (7)

Table 4.13 *Negative Factors* (continued)

	Theme	Code
C. Storyboarding	1. Poor (Unclear and unsatisfactory) quality of storyboards (64)	1.1. Incompatibility with raw content (12) 1.2. Lack of standardized format of storyboard (9) 1.3. Uncreative Storyboards (12) 1.4. Improper Audio-Visual Media Usage (4) 1.5. Not being aware of the software capabilities (4) 1.6. No support from SME (23)
	2. Difficulties in implementing instructional strategies (30)	2.1. Few interactions (6) 2.1. Unclear contribution of the innovative method (5) 2.2. More conceptual, less procedural learning (12) 2.3. More behaviorist, less constructivist approach (4) 2.4. The difficulty of implementing different approaches (3)
	3. Problems of revisions (32)	3.1. Lack of standardized format of storyboard (9) 3.2. Insufficient redaction process (5) 3.3. The tone of Feedback (8) 3.4. Excessive feedback was given by CT (6) 3.5. Ignoring revision requests (4)
D. Production and Initial Testing	1. Pre-production related difficulties (55)	1.1. Continuous and cumulative errors (24) 1.2. Intertwined and iterative ID process (15) 1.3. Lack of an exemplary MOOC to guide (4) 1.4. Inexperience for MOOC development (12)
	2. Limitations of production (29)	2.1. Technical affordance and inabilities (10) 2.2. Low-quality video production (4) 2.3. Voiceover narration problems (6) 2.4. Uncompleted production (9)
	3. Problems of revisions (58)	3.1. Too long testing process (10) 3.2. Subjective and superficial testing (20) 3.3. Lack of cooperative study with other teams (10) 3.4. Lack of a comprehensive standard rubric (5) 3.5. Unable to do some revision items (16)
	4. Cons of end-products (33)	4.1. Player problems (3) 4.2. Portal limitations (14) 4.3. Accessibility problems (4) 4.4. No social interaction (12)
E Organisational Issues	1. Shortcomings of project management (82)	1.1. No good planning (10) 1.2. Time Limits (11) 1.3. Budget Limits (7) 1.4. The extensive scope of the project (5) 1.5. Team Leader related issues (9) 1.6. Lack of a useful PM Tool (14) 1.7. Lack of Standard Process and Documents (12) 1.8. Not defining principles (14)

Table 4.13 *Negative Factors* (continued)

Theme	Code
2. Barriers to quality management (27)	2.1. Insufficient number of QAT (2) 2.2. No QA Leader (5) 2.3. No independent working environment for QAT (6) 2.4. The extensive workload of QAT (14).
3. Inadequacy of human capital management (61)	3.1. Unclear or wrong distribution of tasks (12) 3.2. Lack of some Non-Key Experts (4) 3.3. No Experience in MOOC Instructional Design Project (14) 3.4. Many people to manage (6) 3.5. Lack of orientation of the people/firms in the Project (5) 3.6. Lack of guidance for the junior members (10) 3.7. Complications depending on outsourcing (10)
4. Limitations emerging from the nature of the project (91)	4.1. E-Learning sector capacity in Turkey (11) 4.2. Type of Project (12) 4.3. Too general technical documents (27) 4.4. No sustainability plan (11) 4.5. Lack of a project consultant (1) 4.6. Limited Incentive (8) 4.7. The high pressure felt by CT for being the control mechanism (9) 4.8. University Prestige (12)
5. Complicated organizational communication (68)	5.1. Wrong communication channel for negotiations (24) 5.2. Many people to communicate (11) 5.3. Email Traffic (4) 5.4. Not effective communication in meetings (8) 5.5. Wrong communication (8) 5.6. Lack of common language on ID process (5) 5.7. Not being able to communicate (8)
6. Perceptions and expectations (75)	6.1. Pre-Assumptions (6) 6.2. Previous Experiences (10) 6.3. Different priorities (13) 6.4. Self-censorship of CT (5) 6.5. Different Expectations (18) 6.6. Unclear Expectations (9) 6.7. Unrealistic Expectations (4)

A. Analysis Phase

When it comes to the negative factors of the analysis phase, there are many disablers, limitations, and challenges related to planning and implementing of analysis studies due to the phase's time period is quite long and intensive. Also, since it covers the inception phase activities of the Project, which includes all organizational and technical preparations for the healthy implementation of the Project, it can be said that the negative factors of this phase have a huge effect on the other phases. Conducting and

implementation analysis studies problems, the inefficiency of the analysis studies' outputs, conflicts within and between the teams, SME related problems, time limits, difficulties emerged from the unstructured plan and formative process, troubles on MOOC Creation adaptation process, not to be sure of the roles and missions of the teams, lack of some key experts in the process, challenges of being on the same page etc. created barriers for both analysis process and the whole ID process. It should not be forgotten Bilgeleş Project was conducted in a formative evaluation manner, and the "analysis phase" means pilot implementations and iterative design cycles to improve the MOOCs and design process of them as mentioned positive factors part earlier.

As negative factors of this phase, two themes emerged from the analysis: *1. Drawbacks of Need Analysis Studies* and *2. Pilot pdMOOCs' problems* (See Table 4.14). These two themes cover many issues related to an insufficiency of need analysis studies, best practices analysis studies, SME problems, orientation and planning issues, testing and quality assurance etc.

I101: This phase of the project influenced the performance of the whole project because of a very short pre-defined duration of the project with the deliveries and results expected. The pressure was rather high on all sides since all stakeholders expected this process would be easier and quicker (PMT1).

Table 4.14 *Negative Factors of Analysis Phase*

	Theme	Code
A. Analysis Phase	1. Drawbacks of analysis studies (24)	1.1. Insufficiency of need analysis survey (6) 1.2. Planning barriers to identifying the instructional needs (10) 1.3. Limited contribution to the course design process (8)
	2. Pilot pdMOOCs' problems (48)	2.1. Troubles emerged from SME related issues (10) 2.2. No detailed plan and strategy for the ID process (10) 2.3. Struggling with how MOOCs to be tested (8) 2.4. Challenge of being on the same page (20)

4.2.2.1 Theme 1: Drawbacks of Needs Analysis Studies

Generally, the interviewees claimed that need analysis studies have some serious drawbacks although they believe all of the studies made attempts for a better implementation. Many people from QAT, CT, PT, and SWT criticized that the insufficiency and timing of need analysis survey, challenges of determining the needs of

the target group, and unsatisfied contribution of best practices analysis study. For instance, only 50-60 course topics could be detected based on needs analysis results and the practitioners tried to find some other reliable ways to determine the other course topics which the target group needed. As an example, QAT members expressed the teams had difficulty to find new course topics and instructional needs while stating the major time-consuming issues:

I102: Planning is definitely very important. There is always a B plan in planning but we did not have. I remember that we entered into last six weeks but we still had some unidentified courses (QAT2).

I103: The previous relationship of the target group with online-learning is also important. This relationship will identify the needs. We do not know the relationship of the participants with online-learning yet. We will be able to figure it out after this project. Therefore, we may do new things and new arrangements, or we may change some things completely so that we could actually respond to their needs (QAT1).

The following documentations had also represented unsatisfactory for the general needs analysis studies.

I104: It is difficult to make any generalizations. We can just talk about it for this present target group. We may talk about the improvement points but it seems difficult for me to make general comments. You remember the man I mentioned earlier, the one graduated from the high school, even from the vocational high school. He started working as an officer. In fact, we expect to work with someone graduated from high school at SME. He was graduated from the department of accounting, as far as I remember. In the first then courses, we had a course about 3D printers. You remember how much we humiliated that course. We complained that “we are shown nothing; we do not see printers etc.” However, he admired that course. So you see how different our viewpoint is from his perspective. Therefore, I do not know. Maybe, we will understand as it is practiced. Now, it is just a guess (CT5).

High Impact Item: Inconsistency between the trainings and the needs of the trainees

- Lack of effective implementation of needs analysis
- Unsatisfactory implementation of SWOT analysis and survey (4. Risk Register Table).

Assessment of the ToR and preliminary analysis of the actual situation. CT offered Turkish Information Foundation to TAT in order to get some data about the actual situation (Inception Report Review Workshop Minutes).

Especially, as observed, PMT and its collaborators (research team) had needs for CT’s recommendations in the analysis process since they generally had no experience in the ICT sector and ICT field.

There were four codes related to the theme drawbacks of need analysis studies: *1. Insufficiency of need analysis survey, 2. Difficulties in determining the Needs, 3. Limited contribution of best practices analysis study, and 4. Too early to identify the learners’ needs.*

Insufficiency of needs analysis survey (7)

This code emerged from the problem of not being able to determine the needed course topics. Six of the practitioners declared that they were not happy with the need analysis survey results due to the implementation barriers based on their experience and observations in the ICT field. They indicated the implementation and conduction of the need analysis survey had some important drawbacks in order to get reliable and valuable results.

I105: We are inclined to say that these are the things that are not done in Turkey because, I do not know, there is no such course such as wearable technology in anywhere. Nobody said it would be better to offer such a course, because the man does not know anything about that. So it was a little bit strange that we expected him to speak about a subject he is not familiar with (CT4).

PMT and the researchers for need analysis survey had not negative perceptions as much as the other teams since they achieved one of the project goals by reaching more than 500 people (employee and employer) in Turkey. Also, they had a long approval processes for the need analysis survey questions with CT and they got a lot of revisions in terms of question types, question expressions, and implementation etc.

I106: Even if they visited the Organized Industrial Zones, they conversed with just the leading office. They never talked with the actual workers or the ones who utilize the project except for the ones in the leading offices. They never contacted them in humane terms (CT6).

Therefore, the insufficiency of need analysis study could be explained with many other factors like the limitations of interviewing SMEs in Turkey, their awareness level about the topic, their working style or they could not feel free due to some workplace dynamics. But, if we focused on the results, the analysis phase had spread out the all project process, and in the course creation process, it was not clear some major learner features for the practitioners.

Identifying 10 or 15 course names by the end of August (28.09.2016 PM Presentation).

Planning barriers to identifying the instructional needs (13)

Lack of planning direct communication with the target group caused several barriers to identify the instructional needs. Exemplary statements for the planning barriers to identifying the instructional needs codes as follows:

I107: At the moment of the course creation, we do not know who the real participants will be, what is their pre-knowledge and interests(PMT1).

I108: *The ones who set up the project interacted with the SMEs. The experts and the ones planning the project are compulsorily come together but the SMEs and content-suppliers never interacted with each other (SME1).*

Although CT clearly explained the expectations on this issue at the *Kick-Off Meeting*, the desired planning could not be done.

The CT made a presentation indicating the expectations of the CT. They highlighted the following main points for the key activities:1. In order to achieve the Result 4 (Awareness Raising), directly communicate with the target group by conducting meetings with stakeholders in Ankara, İstanbul, Eskişehir, İzmir, Gaziantep (17.12.2015 Kick Off Meeting Minutes).

I109: We are the ones who are involved in the instructional design business but we do not know how we can teach these courses better at this moment. You remember I said this to you in a meeting: “I make some suggestions but I do not know whether the audience will learn the content better.” I say we should give it a try at least. We are not even able to foresee this. The variables should not limit themselves to the questions like “What should be the topics? Will you take this course if it is like that? or “Do these topics attract your attention?” For these courses in the project to be implemented well, there are many more variables to be taken into consideration such as the political, the economical or the present condition in the country. Therefore, we will be able to see other variables in the next steps (QAT1).

As it can be seen above explanations, regardless of the specific analysis study (not specifying one study but focusing all of them) some practitioners were not comfortable with the timing and conducting style of all analysis studies because they believed that the main points about instructional needs had been missed in planning the research issues or domination of the subject.

Limited contribution to the course design process (8)

This code had emerged from the critics about some specific analysis studies while the interviews were interrogating the contribution to the course design. According to the interview results, best practices analysis study and SWOT could be regarded as the main responsible characters in terms of limited benefit for the ID process.

I110: The examination of the best practices gave us an idea but the contribution of it to the current condition of course designing process remained limited (APS1).

An APS member had also commented on this issue in the Inception Report Review Workshop:

According to EUD, the best practice analysis research should not be limited only to the BRICS and EU countries and Turkey some institutions from other countries should be examined (Inception Report Review Workshop Minutes).

Another example could be found at Initial Portal comments provided by CT:

In general, for MOOCs, the default page and course structures of Moodle are not preferred as we observed from popular MOOC sites which were also examined for Best practice analysis of our project. First of all, these default interfaces are a bit crowded. Second, for novice users, it is better to introduce a familiar environment. Therefore, please check other MOOC sites, prepare and offer a couple of course formats for CT's evaluation. For the design of new course formats, please consider:

Being simple, being similar to other MOOC sites, reserving as much area as possible for content presentation (Initial Portal Comments).

Furthermore, one member of PMT explained why SWOT planning was not unsatisfactory, respectively:

I111: I participated in one group. Some information was collected during those meetings; however, I am not sure in the quality of the inputs collected there since in my opinion SWOT would not be the best method for collecting information at that stage of the project and for planning the new service which did not exist at that moment (PMT1).

Theme 2. Pilot pdMOOCs' problems

This theme focused on the first cycle of pilot pdMOOCs, and it emerged in connection with the encountered problems. The ID process of the first pdMOOCs was such a challenging process for all the teams, they decided to celebrate the achievement of finalizing.

A celebration was decided to be arranged after the end of first ten courses (Course Development Meeting).

One of the PMT members define these ten courses as follows:

I112: If we wait for the product is 100% ready for presenting to the consumer, we lose much time. WhatsApp came up, for instance. The company sends new updates in every month while setting up the system. When google appeared first, was it perfect. Not at all. Do you know how it was? It was just 20% of what we aimed to do. In fact, that is what we aimed for in our first 10 courses. First, we should have given the first 10 courses and then we could have designed the remaining 90 courses according to the feedback, but it did not happen (PMT2).

The majority of interviews stated that these specific problems of pilot pdMOOCs can be seen as a reflection of the analysis phase problems since they should be prototypes before the other course design process did not begin. There were 4 codes: *1. Troubles emerged*

from SME related issues, 2. No detailed plan and strategy for the ID process, 3. Struggling with how MOOCs to be tested and 4. Challenge of being on the same page.

Troubles emerged from SME related issues (10)

Unfortunately, there were several problems addressing the SMEs of 10 pdMOOCs, and the practitioners evaluated the problems with the sources of them. For instance, SMEs wrote the raw contents as a part-time job since they already had a full-time job. Or, because they were mostly academic persons, they wrote more academic content that were not desired for Bilgeİş MOOCs.

Most of the raw contents are produced by the professionals (e-learning company) since the authors who do that as part-time job need more time to produce one course (Second Interim Report).

I113: What comes to my mind when we say the first ten courses is the content-experts. I understood that there was something wrong during the process of course preparation even though I was not graduated from the department of Computer Education and Instructional Technology. I realized that some could not be done that way. This is what comes to my mind (CT4).

Another aspect of SME-related problems can be finding the right SME for the MOOCs and defining the writing process of them.

I114: There were titles of the first ten-courses which were prepared precisely but there were some problems in the way the content was written. It was apparent after the first ten courses that the process of the content writing should have changed. In other words, it turned out that content experts, from whom the contents would be taken, should have continued in a different way. Well, I think this is the first 10 lessons in which the we will get experiences (QAT1).

I115: We did not even have a content-expert. It became a burden for us to find a content-expert. It also became a burden for us to get the content from them in the way that we desired. Those were the problems within this specific project that we encountered for the first time, and the problems that we could not foresee when we signed the project's ToR (APS1).

No detailed plan and strategy for the ID process (10)

The ToR, the Offer and other several project documents included a time plan for pilot pdMOOCs but no detailed process for MOOC ID strategy. So, the formative ID process of 10 pdMOOCs had many advantages and disadvantages. While a restricted plan might be useless and it could cause disappointments; an inexplicit strategy based on the progress could cause time loss.

I116: I realized that the first ten courses were not prepared well (QAT3).

6 of the participants stated that this unplanned and unforeseeable process was related to the difficult of sticking to the planned schedule, and they could not be effectively adapted to the ID process due to the time pressure.

I117: There was some influence on the course design and development, however not so high as one could expect. There is again a short project duration problem. The courses' design process started almost immediately after the project kick-off, and when the process is established, it is hard to change it under known time pressure (PMT1).

I118: It is not possible to adapt the determined schedules as production and raw content in the time planning formed; because the production process changes depending on the volume and number of screens of the content (Course Development Meeting Minutes).

Struggling with how MOOCs to be tested (8)

The meetings and emails in the ten pdMOOCs testing and revising process generally showed that there were conflicts based on different perceptions, assumptions and viewpoints of the teams. The practitioners really have struggles with how they should test and revise while there were lots of problems in each phase of the ID. One exemplary quotation was represented below:

One of the E-Learning company representatives stated that 12-15 people will work for this part (10 pdMOOC) and 7500 screens will be produced and 9-10 hours videos will be uploaded according to their presentation. They showed a template to the CT in order them to present the content. CT would like to see more interactive productions such as a live figure. Assessment of the learner should also be provided during the teaching of courses, not only at the end of the courses. Portal should include more videos and visuals and less words (10 pdMOOC meeting minutes).

I119: Did you say the first ten courses? Bad. There are thousands of revisions. Go back and look again, turn back and look again, turn back again and again (CT5).

...that the first ten courses must be a guiding light in respect of the expectations (Content Development Meeting Minutes).

The first 10 courses were entered into the correction and revision process. All 10 courses were passed through a multi-iterative revision process due to the fact that the raw contents were not of the desired quality and could not meet the expectations of the CT. Also reflecting the required revisions after the production process is completed caused technical difficulties and doubled the workload and exceed the planned duration (Interim Report)

3 of the practitioners focused on the very important reason for these problems, which was another aspect of this issue there was a lack of QA process in ID design:

I120: The controlling of the raw content, scenario, production and lastly the steps of test were not settled down well because there was not the quality assurance process (QAT4).

Challenge of being on the same page (20)

Preparing pdMOOCs creation phase can be seen as a troublesome adaptation process of MOOC design since nobody in the project has the experience to create a MOOC. On the other hand, the practitioners had been in many e-learning and distance learning projects before, and they were aware of the MOOC concept somehow. So, some terminologies and their meanings were different for the teams. Especially if they imagined another MOOC Portal in their mind, they wanted to create similar links or differentiate the Bilgeİş MOOC portal based on some cultural beliefs.

I121: It is because in three or four different managements it was only discussed and left as it was. In the next multi-management meeting it was re-discussed. From a distant point of view, I think that taking decision was late during the process of the first ten courses (PMT4).

We should adjust something since the beginning to move on, we should concord about what we want if not, the work is going around too much among the parties at this situation is extending to much the process (Content Development Meeting Minutes).

Forums, peer evaluations, certificates, course framework, and learner tracking, were just some of the discussed topics in the meetings and e-mails and there were still many unforeseeable issues at the beginning of the project. Therefore, it was very hard to be on the same page for all practitioners considering every participant in the meetings had several colleagues or junior team members who were waiting for explanations about what they would do.

The preparation of the raw contents of the first 10 courses took much longer time than time scheduled on the Work Plan. The raw content production process was required a more extensive workload and effort than planned. Because it took a long time to have a mutual understanding between the parties about the expectations (First Interim Report)

I122: Try to reach an agreement and try to express your problem. Try to express what we want. Get into conflict with the instructor when he says “no, we do not want this” etc. (CT5).

B. Raw Content Preparation

As can be understood from the pilot pdMOOCs problems, raw content preparation had several dynamics which most of them were negative due to several reasons. As QAT1 defined, content preparation was a key role in the ID process.

I123: Instructional design of a something will be created. This is perhaps related to what I said first. There is a saying: Content is the king. It is really so. It became apparent (QAT1).

In the course development meeting, there were long discussions about how raw content should be prepared and detected criteria set were regarded as barriers for the process:

The things that made the process difficult [for raw content]:

Re-writing was asked for the content.

Re-writing during the process of approval was asked for again.

Examples were asked for being specified according to the target group (Course Development Meeting).

As negative factors of this phase (See Table 4.15), three themes emerged from the analysis: 1. *Insufficient Raw contents*, 2. *SME related troubles*, and 3. *Problems of revisions*.

Table 4.15 *Negative Factors of Raw Content Preparation*

Theme	Code
B. Raw Content Preparation	1. Insufficient raw contents (73)
	1.1. Improper translation of contents (14)
	1.2. Problems arising from the nature of the content type (11)
	1.3. Reliability problems (19)
	1.4. The wide scope of the content (7)
	1.5. The sequence of the content (4)
	1.6. Typo and misspelling in the content (7)
	1.7. Lack of extra course materials (6)
	1.8. Measurement and evaluation problems (5)
	2. SME related troubles (65)
	2.1. The difficulty of accessing to SMEs (16)
	2.2. Challenge of preparing online course content (19)
	2.3. Challenge of teaching experience (11)
	2.4. Challenge of know-how (6)
	2.5. Lack of an orientation process (13)
	3. Problems of revisions (22)
	3.1. Insufficient quality control (10)
	3.2. No clear quality standards (7)
	3.3. Excessive feedback given by CT (5)

4.2.2.2 Theme 1: Insufficient Raw Content

The majority of the practitioners found that the raw contents insufficient and unsatisfactory. The practitioners had know-how in both content writing and content topics; they generally tried to improve the content quality by feedbacks and comments before the approval process.

I124: The raw content for the unplanned courses turned painful for us (QAT2).

One person from ELT explained their concerns about time and progress. She talked about the risks regarding the delays on delivering raw contents. CT told that they were aware of this risk, but raw contents were not satisfying enough to give an approval. Thus, the CT needs to be sure of the quality of the raw materials before starting the production (2. Monthly Management Meeting Minutes).

The main and imminent risk for the operation is a delay in the implementation of Result 2 and Result 3. According to the Operation CT's experience and observation, the Contractor is having trouble in finding subject matter experts which results in poor quality raw contents. The poor quality which does not satisfy CT's expectations causes prolongation and several rounds of revision. In order to avoid this risk, new sources providing raw contents are being activated by the Contractor. After mobilization of new resources, the quality of raw content increased significantly, and rounds of revisions is limited to 3 most of the time. However, since different subject matter experts have different perspectives, both TAT and Operation CT still put a great amount of effort (Monitoring Sheet April 2017).

The reasons for the insufficient raw contents can be summarized by these 8 codes which were raised from the qualitative analysis: *1. Improper translation of contents, 2. Problems arising from the nature of the content type, 3. Reliability problems, 4. The wide scope of the content, 5. The sequence of the content, 6. Typo and misspelling in the content, 7. Lack of extra course materials, 8. Measurement and evaluation problems.*

Improper translation of contents (14)

First project manager of Bilgeİş was a foreign expert, she suggested to provide some raw contents from some authors of her country. Since to find proper and sufficient contents was a big problem for the practitioners, it was decided to get support from the foreign authors for 3-5 courses. This decision seemed to be an advantage to save time at first side, but then there were emerged translation problems in these English contents. Although the source of problems was the improper translation, some cultural issues were also detected in the time.

I125: Some Turkish translations of the concepts in English were like google-translated. They were not referring to the full-meaning. Once there were revised and changed later, it was affecting the whole process (SWT4).

It was hard to deal with translation problems (lack of needed transition statements, disconnections in narration, loss of meaning or possible cultural sensitivities in visuals) and some effects of these problems remained to the end of end-user tests.

There should be a concluding remark at the end of each topic (End User test results).

Besides, lots of revision requests related to the language and the difficulty to not to reach SMEs immediately made more complex raw content writing process and unfortunately QAT had to take responsibility for these courses.

I126: It was like we wrote it from the scratch. In other words, composing the content was tiring (QAT3).

Problems arising from the nature of the content type (11)

Bilgeİş pdMOOCs have both social skills based and technical skills-based courses. Due to the nature of these two kinds of courses, there could be different problems. For instance, rapid changes could be in IT related contents as mentioned by 8 practitioners:

I127: There appeared the Turkish interface for that course. Change that course. Such e-mails as “from now on, let us produce the courses just in Turkish interface” posed serious problems (SWT1).

Moreover, the raw content related problems might remain at the end of the production process.

I128: Revisions of IT issues until the production ends, the changes in screens, and starting the production knowing this even at the very beginning (SWT1).

The revisions and requests coming for some of the courses after the production process has been completed have caused the scheduled time to be exceeded. It is considered as a risk by both TAT and CT especially for the software-based courses that new versions of the software are being developed (Interim Report).

Or there might be soft skills related to content problems due to the conceptual framework of the contents when they should be pdMOOC. Three of the participants declared these kinds of courses different dynamics based on rules, principles or regulations.

I129: They [soft skills courses] were intense but there was information. Even though we try to shorten it, there are so many law items in that course. The dynamics of the soft skills courses were definitely different, of course (QAT2).

Reliability problems (19)

Although Bilgeİş aimed to provide reliable information and the target groups declared this was a big gap, unlike information pollution on the internet, it was difficult to achieve reliable raw contents even though working with Professional experts from the field.

I130: It is difficult to reach at true and trustworthy knowledge on the Internet so we apply to old methods such as instructors and written materials. It causes problems if the project leads to information pollution (KOBİ Employer/OSTİM).

It was possible to encounter the contents without references, plagiarism problems, invalid, or out of date information.

I131: To exemplify, the content that I myself revised, I thought as if some parts of it were taken from a book or copied from somewhere. It was revised as much as possible and then presented to you but you might even realize that some parts of the content were still disturbing even though you received the revised version. Even think about the first version. There were such courses (QAT4).

I132: Yes, the trustworthiness of the information in terms of content is never checked at all. Let it go off your mind. The man, for instance, puts the course to the website but who will check its veracity? How should you know? (SMET1).

The wide scope of the content (7)

Especially at the initial phase of the project, there was a lack of QA standards and so QAT was not been able to communicate with SMEs regarding what kind of content should be developed. On the other hand, SMEs wanted to present the whole information cumulatively and they wrote like writing a book. However, the desired contents were identified and the outlines of the contents were a big helper to draw the borders of the topic. 7 of the practitioners stated that the wide scopes of the content were a big challenge for them because pdMOOCs require more concise information.

I133: It was really difficult to decide on the outline because the target audience is not known. There is a wide range of group in this project to consider as the target. If you think about the target audience of this project, it is open to everyone on the Internet. I teach photography course in this project and the audience is from Ankara so we are in the same line of thought anyway – we can communicate. However, the audience is too general here so the course should be taught in its most general and simple way although the topic is not that much simple. It is true that the target audience is too wide but you know that no turnery in the east of Turkey will attend the product photography course. So it is better that we should prepare an outline (SME_SWT_DT1).

The sequence of the content (4)

Four participants stated that the sequence of the content was a problem with the raw contents of Bilgeİş. They determined some of the raw contents have not written according to meaningful parts and there was no logic behind in the content sequence. Generally, the desired raw content must be a framework, which has clear limits, from general to specific approach in the course and in each part of the content.

I134: The first problem that comes to my mind is the unmeaningful ordering of the content. Okay, I respect to the expert because he knows how to teach it. I know he teaches that way but when he delivers the course in a written format, it does not proceed that way. It should be divided into meaningful parts (CT1).

Typo and misspelling in the content (7)

Based on observations and the analysis of course documents, typos and misspelling were a really big problem in the raw contents. Each project evaluation related report included the same problem and the practitioners believed that typos and misspellings were time-consuming and these issues could affect the perceived quality of contents.

I135: I always tell that the biggest problem was grammar (CT3).

Lack of extra course materials in the contents (6)

In Bilgeleş pdMOOCs, SMEs should have extra course materials related to the course topic like the outline, summary of the course, glossary, quiz questions, rubrics, assignments and their identifications, useful links and sources, etc. If there were a lack of some parts of these course materials, then the practitioners could have lived difficulties in terms of providing a consistent and reliable course. On the other hand, ID, the process of pdMOOCs could be damaged in terms of time and efficiency.

I136: I expressed one of the problems related to the supplementary materials that came into my mind beforehand. For instance, it is quite important that course materials should be determined at the beginning and should not be kept separate from the raw content. I mean not only the dictionary or exam paper but also the course syllabus. They are the first thing that should be prepared. Otherwise, as we slide forward in the course, any change in supplementary materials affects the scenario, and then the process turns back to the beginning (QAT3).

Input: It means the format of the file with which the subject matter expert will convey all the information about the subject. (Content) (Innovative Method).

PM indicated that additional materials regarding to the first 10 courses will be prepared as soon as possible after the feedback of CT (7th Monthly Meeting Minutes).

Measurement and Evaluation Problems (5)

There were different problems related to measurement and evaluation. For instance, working with a MEE was a late solution when the whole process was evaluated.

I137: Measurement and assessment part were integrated too late because only important thing is not the content. Measurement is similarly important. The main part actually starts there. If you do not measure correctly and give useful feedback to the learner, there cannot be any evidence which shows that the learning process is successful (CT3).

To be able to decide some specific features of the portal, it was needed to be nearest to the Bilgeleş pdMOOCs characteristic features like to be informal and enabling to finish the courses easily. So, more free measurement and evaluation strategies should be followed according to CT suggestions but sometimes, the teams experienced unclear conclusions.

CT asked that whether there would be a time limitation of final exam or not. CT stated that time limitation was not needed. However, NKE said that time limitation is necessary in terms of evaluating every participant in the same conditions and also limited time provides a motivation. CT added that if time limitation is necessary than we can give an extensive time which will not stress participants. This issue is not concluded (14.01.2016- Storyboard Meeting Minutes).

Discussion started with the quiz component of the portal. CT made two suggestions, which are;

1. Quiz questions should have been random for the better evaluation. Team also agreed to this idea. 2. CT suggested that questions in the quizzes might be appear according to the success of answered questions. For example, if a participant can answer the 1st question correctly, the upcoming question might be more difficult accordingly. E-Learning Company answered that they will be searching this method and try it (3. Weekly Minutes).

From another perspective, the desired measurement method should be adaptive testing as suggested CT or similar formats however, this could not be possible.

Dynamic/adaptive testing item was discussed. According to the discussion between an IT Key Expert and CT, it would be better to use another approach. CT and TAT decided to create not a dynamic/adaptive testing but creating A, B, C scenarios which can be selected according to the answers of user (5. Weekly Meeting Minutes).

4.2.2.3 Theme 2: SME Related Troubles

The majority of participants seemed to reveal negative insights or paradox about who should be SME for Bilgeİş pdMOOCs when revealing their thoughts about the SMEs in the raw content preparation process.

I138: If you ask me what the biggest issue is, I would say that I think it is the point when there emerge different responses to the questions as to who should own the content, who should write the content, and from where should be the content provided (QAT1).

QAT mentioned the problems related to the subject-matter experts during the process of raw content preparation. He claimed that he encountered some problems while making content experts implement the feedback provided by CT about the raw content, saying that “Bilgeİş education platform is a portal that aims to put into practice the knowledge learned by the end user after taking the course. However, at the moment when the subject matter experts try to produce the course which is in CT’s target, there occur some communication failings and differences in expectations” (Course Production Planning Workshop).

The SME related problems can be summarized by these five codes, which were raised from the qualitative analysis: *1. The difficulty of accessing SMEs, 2. Challenges of preparing online course content, 3. Challenge of teaching experience, 4. Challenges of know-how, 5. Lack of an orientation process.*

The difficulty of accessing SMEs (16)

It was noted during the observations that all the practitioners were in trouble to find the right SME who can write desired MOOC content based on the raw content specifications and their willing about the contribution to other phases of the ID. Especially in meetings, most of the time the topic was finding the SMEs for the courses and then planning how could access them. However, it was difficult to access and contact them. That is why a significant time is wasted.

I139: We chose some very specific areas, too. There was nobody in Turkey who could provide us with the content in those specific areas. Some parts were found through a company in Croatia. In other words, in general, the delay was caused by the content (APS1).

Current Anticipated Problem 2: Finding subject expert and Remedial Action: Network activities in this field has been accelerated, and the agreement with all the subject experts has been reached at the end of the 11th month (3. Interim Report Version 3)

Challenges of preparing online course content (19)

There was a general criterion set for Bilgeİş pdMOOCs, which should be shared with SMEs, but CT and QAT always declared that the raw contents were not suitable for MOOC format and style. Moreover, some of the SMEs have declared that writing an online course content was a big challenge and they are not sure about how they should write different from their formal or face to face instructions.

I140: I have not prepared content before. You are a lecturer so you normally teach the content. You pay attention to the learners' reactions, you adjust yourself, and then you teach according to their reactions. You teach either more or less. When you realize that they do not understand, you teach it in a rather simpler way. Or, when they get bored, you teach in a funnier way. However, it is online now and you do not get any reactions from the learners. We do not know how the course proceeds. Or, the video, for instance. The instructor may normally skip some parts. So I do not know how it is going to be. I have earned some experience here about how to prepare the content without receiving any feedback from the learners during this process (SME2).

I141: In fact, it is similar to writing a course book. You do not expect any reactions from the learners or any feedback. You may revise a book in its second publishing according to the comments. However, preparing something like this is too much different from face-to-face classroom environment (SME_DT1).

Challenge of teaching experience (11)

This was one of the big challenges of SME related issues since as the common confusion, being an expert and being an instructor were not the same thing. So even if the project team reach the most knowledgeable SME for a MOOC topic, it would be difficult to write raw content due to the lack of teaching experience. For example, some SMEs

prepared very complex course materials in terms of categorizing, explaining, sequencing, planning, defining the learning outcomes etc.

I142: You can be an expert on a specific field. You can be highly proficient at that field but you may not have any teaching experience in that field (APS1).

Challenges of know-how (6)

In contrast to the previous code, sometimes SMEs could have teaching experience but not have enough know-how about the course topic. So, this situation made challenges for content preparation and also the quality of the content. During the interviews, the practitioners declared that some SMEs' contribution was very limited to the content by avoiding saying they are not inadequate but implying the importance of the issue.

I143: If an instructional design for a theme will be prepared, the decisions that will be taken over the instructional design are not independent from the content that much. The significance of the knowledge level, the know-how, and the contribution of the subject-matter expert is enormous (QAT1).

Lack of an orientation process (13)

Unfortunately, based on the observation notes and e-mails, there was not a proper orientation process for SMEs, and naturally they could not imagine what the Project team wanted, how is the desired content, even how the contents would be seen in a MOOC. It was apparent QAT and PMT have conducted meetings with the candidate SMEs but the critical points related to the contents and project might be shared clearly because some course documents included feedbacks of SMEs related to their unawareness.

I144: What are we planning to do? What is the aim of the project? What are the objectives of the project? How is online-teaching material prepared? The content of online teaching must be different from face-to-face teaching. We faced difficulty in the processes of scenario and turning the content into teaching (QAT2).

4.2.2.4 Theme 3: Problems of Revisions

The last theme of the raw content preparation phase is revision problems, which have several dimensions like not be provide objectivity and clarity while testing, writing comments and feedbacks, evaluating the feedback and revising. Before the raw content approval, the whole content should be revised and was ready for the storyboarding process. So, beginning from the submission of raw content by SME, firstly QA revision

process, then CT revision started. Sometimes QAT tried to meet all revision requests if it was not possible to access to the SMEs.

I145: It is in your first reaction. When you send a paper to a journal and receive the reviews, you should first check if it is rejected or it is asked for minor revision. Wait a little bit, digest the response, and then go over the reviews. It is the same. It is useful not to react immediately but first to digest. I personally realized this: Nobody wants to see, after the revision, that his paper comes and goes in terms of raw content. I know my team mate, too. We together did the revisions although we were in quality assurance team. In other words, when it was done in a clear way in a table and then other things were asked for to revise later, I think it is not a pleasant method (QAT3).

I146: We finally reached an agreement after long hours of discussions on the questions such as “What is the quality of the course?” “How should it be prepared to meet the third party?” “Which technical details should be used to get a maximum benefit?” Except for us, there are other dynamics involved in the process such as content writer of the courses. They prepare the course anyway and send you the PowerPoint documents. You cannot involve in such matter because you are not an expert on any courses. Therefore, we trust in the instructor’s knowledge providing the raw content; nonetheless, you direct them in other matters (PMT3).

To prevent time loss and complexity in the revision process, sometimes QAT and CT tried to meet some revision requests by themselves since the prolongation of the approval process disturbed everyone in the project. Some problems from the PMT view was like in the following:

Raw content approval problems: Adding new content, Need to refer back to subject-matter expert, Asking for new samples (24.03.2016 PM Presentation)

According to the qualitative analysis results, the revision problems of the Raw content Preparation phase can be summarized by the three codes: *1. Insufficient Quality Control, 2. No clear quality control standard, and 3. Excessive feedback given by CT.*

Insufficient Quality Control (10)

Examination of revision requests and their answers on the course documents revealed that the quality tests were insufficient since there were ongoing errors arising from raw content preparation and affecting the production process. On the other hand, the mentioned ongoing errors or unexpected errors were occurred if these four conditions are in question:

Tester member of CT and QAT changed in ID design (It was observed just for a few courses.)
Tester member of CT and QAT had no sufficient know-how about the topic
A need of designers possessing different competences for each content.
There were several revision cycles (more than 2-3)

Secondary reviewing process should totally be removed; instead of it, the primary revisions should be more elaborate (Course Production Planning Workshop Minutes).

There were changeable or conflicting comments

For instance, a comment like “it should not be this way” should be received in a clearer way with its suggestion by referring to what it indicates (Course Production Planning Workshop Minutes).

So, these types of conditions might cause some misunderstandings and problems. That is why the practitioners perceived insufficiency in quality controls of raw contents. Analysis of the participant responses showed that the main reason for insufficient controls was CT and QAT had no sufficient know-how about the topic.

I147: If you do not give approval to the raw content, then it is clear that there is a kind of lack of knowledge. Your biggest impasse is your lack of expertise there, compared to the person preparing the raw content. What do you do then? You use some of properties of what the educational technologist put forward. However, if you are not happy with that, you put yourself in the shoes of the end-user and say the examples are not adequate, or you ask what the gist of the text is when you read the reading material, then you must not give approval. I think either you will find an alternative subject-matter expert or you will establish a close relationship with the field expert to review the raw content. Yes, unclear topics are searched in the Internet but the resources are not reliable most of the time. It is crucial to reach at trustworthy sources. In fact, you are in a very advantageous position here since you are at the university. There are various departments and you may contact them. Getting any response is another issue, of course. I do not know whether everybody wants to aid but you can exploit such an advantage. The real problem is that either you cast an eye over the content with an alternative subject-matter expert or you can consult some point with the subject-matter expert himself, pointing out the places where you are not happy with or having questions (SME_DT3).

Moreover, one of the PMT presentations suggested following actions for more sufficient control process:

Secondary reviewing process should be removed. Only one quality assurance team member should do the revisions and controlling (28.09.2016 PM presentation)

No clear quality control standard (7)

Raw content testing and revision process the process has undergone a constant revision in itself to find useful and useless issues and then creating some principle. So, during the process, there was no clear quality control standard for CT and QAT. Even though they determined some general guidelines, it was not possible to provide more accurate and generalizable suggestions for whole course contents. Therefore, the majority of QAT and CT followed some general principles and their own instructional designer experience.

I148: As we did not have those [standards], we moved on with our own basic principles such as the need to give a plenty of example or the need for the instructions to be short and clear. I took such notes. Using

my personal experiences, I created my own standards. When I observed a course, I took my own notes regarding the questions such as “Is there this at beginning of the course or does it touch upon this issue? Is it covered in that way? Are the topics exemplified? Is the ordering correct? I myself took notes in such frames (CT1).

....said that the CT institution must determine the draft on its target more clearly, regarding the prevention of the raw content process at a point (Content Development Meeting Minutes).

Excessive feedback given by CT (6)

As one of the CT members, the researcher observation notes and course documents indicated very long and detailed comments. Even though CT had logical reasons for giving excessive feedback, this situation made longer the approval process of raw content.

I149: CT gave quite elaborate feedback. Going back, checking it again, and change some points took time. I think, that is why the courses prolonged that much (SWT2).

Current Anticipated Problem 2: Enormous number of revision processes. Remedial Action: In the meeting held on 17 August 2016 the discussions took place and actions were taken related with this subject (3. Interim Report Version 3).

When the course documents were examined, there were 4 reasons detected related to feedbacks of CT:

- If CT member wrote a general suggestion as a comment in a screen, they thought the suggestion was only evaluated for that screen, not for the entire course. So, they wrote the same suggestion for all related screens by repeating.
- CT member commented all misspelling and typos to avoid overlooking.
- To test the revision requests easily, CT wrote both specific and general comments.
- CT wrote some comments to learn the background of the QA process.
- CT tested lots of dimension of contents: Intellectual property, accessibility, reliability or sequencing, etc.

C. Storyboarding Phase

This phase is very critical for ID and instructional quality of pdMOOCs since the raw content becomes a pdMOOC content in this phase. A practitioner of the project who worked on both the storyboarding part and production part explained why storyboard approval is the key factor and how the approval procedure should be:

I150: It is related to how the process proceeds. Yet, we should take such a lesson from this: A storyboard should be determined by having a review meeting in which both the costumer and the one who prepared it look over it and then sign under it. After that, production should start. However, what do we do? We proceed and proceed too far and in the last step we turn back to the beginning. Our major loss is this,

indeed. We do not use time and human resource effectively. Doing the study again and again as well as the need to remember cause much bigger losses (SWT_DT3).
 I151: Courses were finished. Yes, they were but how were they finished? The process was painful and it did not surprise me because it was my first experience (SWT2).

Moreover, another practitioner of QAT identified this phase questionable issues and difficulties like:

I152: What are we planning to do? What is the aim of the project? What are the objectives of the project? How is online-teaching material prepared? The content of online teaching must be different from face-to-face teaching. We faced difficulty in the processes of scenario and turning the content into teaching (QAT2).

According to the analysis results, as negative factors of this phase (See Table 4.16) 3 themes emerged from the analysis: *1. Poor (Unclear and unsatisfactory) quality of storyboards, 2. Difficulties on implementing instructional strategies, and 3. Problems of revisions.*

Table 4.16 *Negative Factors of Storyboarding*

	Theme	Code
C. Storyboarding	1. Poor (Unclear and unsatisfactory) quality of storyboards (43)	1.1. Incompatibility with raw content (12)
		1.2. Uncreative Storyboards (12)
		1.3. Improper Audio-Visual Media Usage (4)
		1.4. Not being aware of the software capabilities (4)
		1.5. No support from SME (23)
	2. Difficulties in implementing instructional strategies (31)	2.1. Few meaningful interactions (6)
		2.2. Unclear contribution of the innovative method (5)
		2.3. More conceptual, less procedural learning (12)
		2.4. More behaviorist, less constructivist (4)
		2.5. Limits of the wide range of the content (4)
	3. Problems of revisions (32)	3.1. Lack of standardized format of storyboard (9)
		3.2. Insufficient redaction process (5)
		3.3. The tone of Feedback (8)
		3.4. Excessive feedback given by CT (6)
		3.5. Ignoring revision requests (4)

4.2.2.5 Theme 1: Poor quality of storyboards

Views of practitioners about the storyboarding phase showed that the majority of the DT, QAT, and CT members found the storyboards unclear and unsatisfactory.

I153: As far as we understand, what is implied by storyboard is that it is now at the verge of production process and you are not allowed to do much changes. This is the logic of storyboard. [In very problematic

scenarios,] it means that we, both subject-matter expert and the ones preparing the storyboard, produced the storyboard without having adequate conscious of the questions such as “What do we want to tell?” “What do we want to explain to the end-user?” (SWTDT3).

I154: The value of the storyboard is immense. The information inside the storyboard is very important. In the storyboard, you cannot say anymore “let us do it as it goes along and see what happens” (DT3).

According to the qualitative analysis results, poor quality of storyboards theme included 5 codes: 1. *Incompatibility with raw content*, 2. *Uncreative storyboards*, 3. *Improper audio-visual media usage*, 4. *Not being aware of the software capabilities* and 5. *No support from SMEs*.

Incompatibility with Raw Content (12)

Sometimes, to not to be able to provide compatibility with raw content in storyboards caused a complex process in Bilgeleş storyboarding phase. It was because the SWT members removed some important parts from the very long contents to shorten and simplify them. So, loss of meaning and mismatches in the sequencing of content problems could emerge.

I154: We do the content properly or, at least, we accept it as we have done it properly. We look at the storyboard and see that most of the content is gone from the storyboard. Or, the things that we have explained in many sentences have just passed in a single sentence in the storyboard; in other words, it is expressed superficially. For example, a crucial detail does not appear in the storyboard. When one sees this, it upsets him or her (CT1).

Uncreative storyboards (12)

According to the Innovative method of the project, there were several, various creative elements should be in the courses. Also, different teaching and evaluation strategies should be tried based on the topic and course format. However, it was observed SWT members could not write creative ideas or storyboards based on the practitioner's opinions and this was a problematic situation for MOOC quality.

It was discussed about how contents and features were going to be established regarding to management system requirements. NKE mentioned that innovative thinking tools were empowering online learning and these tools should be integrated with the contents (Storyboard Preparation Meeting Minutes).

I155: In the phase of the scenario, they did not add anything. I would have liked to organize the process of bringing the pages or information in the book into a teaching material by enriching them in the process of scenario. Turning into a scenario does not mean putting the raw content exactly into the other side. It should have needed to enrich many things such as making the course quite different with this innovative method. They would have done the biggest change in the step of scenario. Otherwise, it is meaningless to expect it from the raw content; you will do it in the scenario. Those who can produce will produce. Those who cannot do anything in the scenario are not able to inter into the system in anyway (CT5).

To write creative storyboards was a challenging issue for SWT members, because as they stated, an important factor, there was a lack of SWT members who had enough know-how about the course topics.

I156: There was [a need of] educational designers with different competences for each content (SWT1).

No support from SMEs (23)

In connection with the code mentioned above, since it was not always possible to get help from SMEs, SWT members took some responsibilities but it was not fair enough to write attractive or innovative ideas due to the lack of know-how about the course topic. On the other hand, when SWT needed to expert's opinion about a course element, they hesitated and referred to the design in a nonrisky style.

I157: The expert never sees the scenario or the product again after the raw content is approved. In other words, perhaps, we misrepresented what he aimed (QAT2)

I158: I submitted the content so I am not present anymore. They just reached at me to ask for some samples regarding what they wanted to do when they got stuck in. Or, for instance, I said something in a sentence and in the other sentence I said the opposite to that, they asked me which one was correct. That was it. They did not comment on how we should have taught the course or whether it was better if you taught in this way (SME1).

So, it is possible to claim that the quality or effectiveness of storyboards are questionable since SMEs could not be integrated into the storyboarding process.

Courses' writers are subject matter experts (SME) and instructional designers or instructional systems designer (ISD). While subject matter expert is responsible for course topics to be chosen and presented, instructional designer is an expert in designing learning activities in order to achieve the best learning experience and learning achievement. It is very important that SME and ISD create and design a course and write a content together, because, depending on a design of learning activities, content needs to be presented differently. Text for digital lessons, exams, quizzes, interactive objects, video multimedia objects, exercises etc., need to be written in order to prepare a content to a next phase, which is creating digital multimedia content (Innovative Method).

Improper audio-visual media usage (4)

Improper audio-visual media usage code refers to some misuses about the intellectual property or visual design of audio-visuals in storyboards.

I159: In state of unavailability of the pictures to be used in the course on the Internet or Shutter stock, there were problems with regard to the unsuitable pictures (SWT4).

Although reports, meetings emails have focused on this topic, unfortunately, it was also possible to meet these kinds of errors in end-user tests.

Use of stock photos: It means the use of stock images, supplied from various image banks, and of which the licenses are obtained (Innovative Method).

Visuals: The inscriptions on the image should be legible. In the sample used, a background can be added to the inscription. The samples used should be meaningful. If a text is added to a visual, the text should communicate with it. It is pointless to inscribe “Bilgeleş” onto a forest visual. A sound example should be given (End-User test results).

Not being aware of the software capabilities (4)

Not being aware of the software capabilities to produce the end product was a big challenge for SWT. Especially junior members declared that generally, they had difficulty while they were designing a screen. Because they were not aware of the possibility of production, production process, and software capabilities.

I160: Not having any information about the environment regarding the product you created can also complicate the process because later you may need to shape the product many times according to infrastructure. In terms of the scenario, the [quality assurance] team may want to explain the lessons in a different way or suggest different revisions, but there may be minor disagreements as the portal is also taken into consideration while preparing the scenario. This case thus complicates the process (SWT3).

4.2.2.6 Theme 2: Difficulties in implementing instructional strategies

Difficulties in implementing instructional strategies were determined to be one of the main themes during the interviews. For the current theme, it is possible to see some arguments in contradiction with the positive part- instructional approach theme. Because the practitioners generally seemed to be satisfied with the instructional strategies of pdMOOCs however they were aware that many desired things could not be done due to several reasons.

I161: I think we experienced the instructional design problems more in practice (CT1).

For example, as one of the instructional approaches related suggestions in the scenario documents was presented following paragraph revealing some conflicts between theory and practice.

Let us show an example of what we try to do before starting the steps in the screen recording. For example, if it is to be retouched, two pictures with the highlighted difference should first be shown. Then, the process steps should be explained. We should be able to clearly see the process performed at the end of the screen recordings. If the initial and final version of the edited picture is shown, it can be understood what has been done. In this way, it is not clear what the outcome of the transaction is.

Although the teams were on the same page in applying procedural learning principles to the course or motivating learners with a finished task, implementation of these decisions to the storyboards was very challenging. Therefore, with many several reasons, PMT suggested a more different strategy for the ID of the courses.

Question: How are we going to reach at 100 contents? Solution: Fast production.

What is a fast production method?

Subject-matter experts prepare the teaching materials as PPT. During production, graphic designs are made for each screen without leaving the PPT environment, and appropriate visuals are added.

Videos with certain amount of length can be added to the screens. (max 15 minutes)

Multiple-choice questions can be added. Interaction is not involved, except for the video and the multiple-choice questions. Works in ICT player. WCAG compatibility provided by the player is maintained (28.09.2016 PM Presentation)

As seen in the part above, especially the 5. and 7. items focus on more static, inaccessible and different from the ID strategy of CT suggested. So, this suggestion of PMT and E-Learning Company was denied. Rather, the practitioners had to choose more different structure than the desired teaching strategy.

According to the qualitative analysis results, difficulties in implementing instructional strategies theme include 5 codes: *1. Few meaningful interactions, 2. Unclear innovative method, 3. More conceptual, less procedural, 4. More behaviourist, less constructivist and 5. Limits of the wide range of the content.*

Few meaningful interactions (6)

Although the innovative method and first ten course decisions included decisions about providing a more interactive learning environment:

I162: E-learning company leaders showed a template to the CT in order them to present the content. CT would like to see more interactive productions (1. Weekly Meeting Minutes).

E-Learning Company presented the sample of the storyboard that the team prepared according to the scenario. Storyboard which has been prepared is for the course Google Drive. NKE proposed to add some animations to video in order to make videos more attractive (Storyboard Preparation Meeting Minutes).

Some of the practitioners from different teams believed that some course scenarios had a few meaningful interactions, contrary to the expectations and decisions.

I163: While some courses were in PowerPoint style, some were in the style of page turner (CT6).

As a response to moderator's question, CT said that "we have to fix something from the beginning, we must agree on what we want, otherwise a job turns too much between the parties, and this situation

prolongs the process” and added “the recently received content is more appropriate to the expectations.” CT stated that it was mentioned that there would be simulated content in some courses, but there has not been even a showcase course so far, that is, he stated that a standard has not yet been established (Course Production Planning Workshop Minutes).

Unclear Innovative Method (5)

How innovative method could contribute to the instructional strategy and how the suggested instructional suggestions could be implemented were 2 questions which always were argued in the meetings and could not be answered. Especially CT made important critics like the innovative method was just a summarization of some literature findings. So, it is possible to claim that the innovative method was an unclear issue for CT and was not a guide for all practitioners.

CT indicated that they need a totally innovative approach to online learning (1. Weekly Meeting Minutes).

I164: Putting aside some of the little things we did on the course, I do not think we did anything innovative in general (QAT1).

I165: It is as if innovative method was applied just to show that it was applied. In other words, it remained just on the papers (CT2).

I166: I think the innovative method was too weak (PMT2).

On the other hand, it was not clear what was really innovative in the method for the majority of practitioners.

I167: In my opinion, the document produced was quality one which summarises and provides recommendations which method to be used in the instructional design, portal development and tutoring participants for the chosen target group. The implementing team and the CT team had discrepancies in the understanding of the word “innovative” in the document title. Implementation team could not produce some very innovative teaching methods in a short time without the possibility of experimenting and recording results. Only the proper combination of already available methods and models could be provided. The CT team wanted more out from this deliverable (PMT1).

More conceptual, less procedural (12)

Need analysis studies and literature findings revealed that the target group need more procedural learning strategies rather than a more conceptual learning structure which include long reading materials and more static screens.

There may be a program for the businessman who is in the office for 10 hours. Trainings should be mostly visual. It should not require reading. Animations should be used (Feedbacks from Need Analysis Interview).

The participants generally stated that the Bilgeİş pdMOOCs could be prepared according to a more procedural approach, but instead they had prepared more conceptual lessons due to several reasons.

I168: A course that was more dynamic, moving and immersed in stories would be more effective. In many courses of the Bilgeİş project, storytelling would appear only at the beginning of the training (SWT3).

I169: There were certainly courses turning to concept teaching but there were also courses suitable for procedure learning (QAT2).

More behaviorist, less constructivist (4)

Views of practitioners about the instructional approach showed that some participants perceived more behaviorist approach in some scenarios and showed signs about this was a negative factor. Based on the observations, technical difficulties of constructivist strategies implementation might cause a more behaviorist approach for some courses. On the other hand, the practitioners were aware that the target group analysis studies indicated a more constructivist education model. But at the same time, it was inevitable to design some screens with more behaviorist viewpoint.

I170: It seems so in education [system] in general. We say we will be constructivists or so on but what we do is direct teaching again. We also have a pedagogical problem. For example, we give lectures in most of the courses but we often humiliate direct teaching method. When it comes to lecturing, we want to excommunicate it; nonetheless, we cannot give it up (CT1).

Therefore, not for all course structures but just for a few courses, the instructional strategy of Bilgeİş pdMOOCs can be seen as more behaviorists.

Limits of the wide range of the content (4)

The wide range of content was a significant limitation in terms of applying the same strategies and principles to all courses.

I171: [We need] more time to think of the specificity of each course topic. This would enable the designers to create different approaches for different courses (PMT1).

Also, difficulties in trying and implementing different approaches emerged from the various content and time limits.

I172: Because of the time limitations, the same or similar approaches were used in all courses (PMT1).

Sometimes the course topic itself could limit the instructional strategy implementation in storyboarding.

I173: Let the examples be given from daily life and let the learners do something by themselves at the end. It does not happen so in every course. Sometimes it worked but some did not. Each lesson has its own special attitude. While some are very conceptual, others involve step-by-step procedure. It depends very much on the context. Of course, it depends a lot on the subject, too (CT5).

4.2.2.7 Theme 3: Problems of Revisions

Participants generally seemed to reveal negative insights when stating their thoughts about the revision phase of storyboarding. A PMT presentation summarizes the barriers and challenges of storyboarding as following:

Items that strain the scenario control process: New content, Returning to subject-matter expert, New example, Revisions added to other screens which are not included in the primary controlling (24.03.207 PMT Presentation).

Moreover, storyboard testing was tough in terms of understanding what kind of interaction/activity/presentation/animation /simulation / notation etc. planned, how they should be designed, and explained to be more clarifying. So there might be lots of questions before the approval process.

I174: Signing under the storyboard does not mean seeing such beautiful colorful shapes. It is really necessary to consider whether the voiceover is appropriate in it, or whether the appropriate visuals are selected for the given subject. These should be the points examined. On top of that, we really scanned the storyboard in subsequent storyboards. We started browsing as if we were writing a storyboard. Then we said, "look, this sentence is not appropriate here." Of course, you correct what you can fix in that sentence. Some of them are obvious. It can be a spelling mistake, but there must naturally be missing points (SWTDT3).

According to the qualitative analysis results, difficulties in implementing instructional strategies theme include five codes: *1. Lack of standardised format of storyboards, 2. Insufficient redaction process, 3. The tone of feedback, 4. Excessive feedback given by CT, and 5. Ignoring revision requests.*

Lack of standardized format of storyboards (9)

The format of storyboards is a very important topic for CT and QAT since they wanted to read and understand correctly the interactions, videos, animations and the other instructional elements would be on course. But if there were different expressions for the

same thing in the scenarios or unclear items caused a dilemma, then they could have difficulty in terms of determining screens, imagining interactions, approving the presented ideas, etc. So, if Bilgeİş storyboard reading guide was not used, another outsource company prepared storyboards in different formats, or there was no standard usage for some elements of scenario, these conditions could be barriers to effective testing.

I175: Such a book of instruction is meaningful under ordinary circumstances but it does not have a meaning after a while because they do not fit into that instruction themselves. Actually, it might help but they do not work under normal conditions. You see someone using that green thing but the other is not. So we ourselves guess after some point. These constitute a difference. Some of them even came to some of the last courses even with the Word documents as a scenario (CT5).

Insufficient redaction process (5)

Sometimes QAT and CT members, as the testers of storyboards could have difficulties in their job. The general process observations presented that the courses had pretty much text or voiceover problems that were ongoing redaction problems from storyboard preparing.

I176: We had such an experience after the first course: it was actually a painful experience for us. You know that the storyboard has a template. We took the parts we called audio files, and sent them to the studio. I cannot say that we had the filming done because the callings started to come to us from the studio all the time. Why is that? They said there was a sentence fragmentation here; how shall we read it? We stop while reading etc. (DT3).

The tone of Feedback (8)

This code was mainly emerged from about some CT and SWT members' feedbacks in the revision process. The tone of feedback refers to barriers for effective communication which include negativity in written language. Specifically, some words in the feedbacks might be perceived as hard and rude. Therefore, the motivation and patience of team members might be reduced.

I177: The process I mentioned was a situation that was very weary on the other side and caused harshness in the written language. Even now, there are some question marks [in my head] about the question as to why it was so harsh (QAT3).

Excessive feedback given by CT (6)

It was determined that the storyboard revision processes and relatively the course production processes were prolonged since CT gave quite long and detailed feedback. These excessive feedbacks were perceived as crucial points or necessities for the healthy production process of courses by CT members. Or some CT members stated that they met with some errors which could be noticed after the first examination, also revised comments needed to control.

I178: Hardship. Specific to this project, what I see as [difficulty] is that there were too many controlling processes (QAT4).

I179: From the point of view of the team controlling the courses, the reason for the prolongation may be the effort to carry out the controlling in detail and meticulously. The course controlling occasionally exceeded the planned time, and the team ignored these prolongations in terms of the welfare of the controlling. In addition, the work carried out with the quality assurance team member during the controlling phase and the works needed to work together with the team can also extend this period (SWT3).

Also, excessive feedback given by CT problem could be found in many project documents.

Mentioned about the problems regarding the revisions imposed on the courses; such as for the “Google Drive” course, after the implementation of the 42 revisions of the overall 49 imposed at the first stage, an additional 53 revision was added. As a second example, after the implementation of the 109 revisions of the 113 incoming revisions in the first revision process for the course “Trust in Internet”, 50 revisions more were added in the second revision process. Another E learning company presenter, as a solution to this situation, stated that the second revision process should be removed and the control mechanism should be done in one go. CT representatives replied that the items added in the second revisions might be overlooked (Course Production Planning Workshop).

Ignoring revision requests (4)

Unfortunately, sometimes revision requests were missed or ignored due to several causes. One of the visible reasons was the scenario revision process included very complex and long discussions between CT and QAT or QAT and SWT. So, the documents had a lot of detailed comments and replies, and then some of them could be forgotten.

Moderator asked the attendees what the three factors prolonging most this process are CT member answered this way to this question; “Iteration number must be decreased, in consequence for the continuation till the end of the mistakes made since the beginning, the realisation of the same task again and again and these mistakes repetitions are the most important factors prolonging the process (Course Production Meeting Minutes).

On the other hand, CT indicated that if they write general feedback for whole course screens, there might be ignored screens which had not implemented.

I180: We have been writing this in every storyboard: “Look at the course as a whole.” It was like: “If there is such a problem throughout the course, fix it.” I even had to write this: “check the dictionary”. I wrote comments to them one by one so that it would be seen as a comment. Otherwise, they do not look at (CT4).

D. Production and Initial Testing

This phase cover portal and MOOC development and also initial testing and revision issues. Based on the results, production and initial testing process were quite intertwined processes and had several dynamics they in themselves. Similarly, in positive themes, the negative issues of this phase also were related to the previous steps of ID. The following quotation of content development meeting minutes summarized the general process to remind:

Course Development dynamics: The development dynamics cannot be precisely predicted until we do not have the content. However, it will go approximately like it follows: The first course will be delivered to the CT chapter by chapter. The course outline, text and scenario should be approved by the CT.

- Scenario development – 3 to 5 days
- Development – 2 4 weeks for the first course, and for others approximately 2 weeks
- Approval process cannot be estimated at the moment
- 2 – 3 courses can be developed in parallel (Content Development Meeting Minutes)

After storyboard approval, basically, the following tasks related problems were examined in production and initial testing phase for each course:

Production of all elements which have planned in storyboards, voice recording, preparing and editing all audiovisuals, and combining all course content in a SCORM Package.

Testing course screens on local - Revision requests of QAT- Revision requests of CT-Testing course on the portal-End user tests-Revisions-Approval of the MOOC-Publishing the MOOC-Beta tests -Releasing the last version of the MOOC.

To clarify the process, *Table 4.17* provides a timetable of PMT’ final presentation can show the approval of outputs of ID.

Table 4.17 *A timetable of course production*

Process	29.12.2016	18.01.2017	22.02.2017	24.03.2017	26.05.2017	12.07.2017	24.08.2017	04.10.2017
Raw Content Approval	71	77	85	93	99	100	100	100
Scenario Approval	39	48	58	68	87	98	100	100
Completed Course	19	25	30	38	68	75	100	100
Courses Added to Portal	10	10	10	10	34	49	100	100

Main characters of this phase DT, CT, QAT and portal developers and one of the favorite topic of meetings was deciding which revision requests could be implemented and which of them not.

That E-Learning Company and CT are able to agree on player/content design revisions that are not applicable within the scope of time/technical constraints (28.09.2016 PM presentation).

Table 4.18 *Negative factors of production and initial testing*

	Factors	Description
D. Production and Initial Testing	1. Pre-production related difficulties (55)	1.1. Continuous and cumulative errors coming from pre-production (24) 1.2. Intertwined and iterative ID process (15) 1.3. Lack of an exemplary MOOC to guide (4) 1.4. Inexperience for MOOC development (12)
	2. Limitations of production (29)	2.1. Technical affordance and inabilities (10) 2.2. Low-quality video production (4) 2.3. Voiceover narration problems (6) 2.4. Uncompleted production (9)
	3. Problems of revisions (57)	3.1. Too long testing process (10) 3.2. Subjective and superficial testing (20) 3.3. Lack of cooperative study with other teams (10) 3.4. Lack of a comprehensive standard rubric (5) 3.5. Unable to do some revision items (16)
	4. Cons of end-products (33)	4.1. Player problems (3) 4.2. Portal limitations (14) 4.3. Accessibility problems (4) 4.4. No social interaction (12)

Based on the results (See Table 4.18), as negative factors of this phase four themes emerged from the analysis: 1. *Pre-production related difficulties*, 2. *Limitations of production* 3. *Problems of revisions* and 4. *Cons of end products*.

4.2.2.8 Theme 1: Pre-production related difficulties

When participants shared their experiences about the general production process problems, they realized that the relation between problems and reasons for the barriers were mainly based on pre-production phases in fact. As one of the important factors affecting the production of the courses, one of the SWT members declared that:

I181: If the scenario is not clear and understandable, it makes the production of the course difficult (SWT4).

On the other hand, the nature of ID was also complex and cumulative structure.

I182: I also think that such software projects mature stage-by-stage (QAT1).

The moderator asked the participants the question of “what the three things that mostly prolong that process were.” CT responded that question as follows: “The number of iterations should be reduced. As a result of the initial mistakes going to the end, doing the same work over and over again and repeating these mistakes are the most important factors that prolong the process” (Course Production Meeting Minutes).

Besides, there were MOOC phenomenon and production experience related barriers in production and initial testing phases. Moreover, the whole ID phases’ intertwined and complex structure created several concerns for the practitioners. So, generally, this theme includes 4 codes: 1. *Continuous and cumulative errors*, 2. *Intertwined and iterative ID process*, 3. *Lack of an exemplary MOOC to guide*, and 4. *Inexperience for MOOC development*.

Continuous and cumulative errors (24)

Most of the participants stated that continuous and cumulative errors coming from the pre-production process affected the whole ID process but specifically the production of MOOCs. As expected, whole problems emerged from the storyboarding, raw content preparation or analysis phase had influenced the participants' motivation, level of stress their working style, quality of MOOCs and MOOC portal, etc. For instance, if there were unclear items in the storyboards,

I183: There was such a complaint which was told me on the phone: “How did you approve such a scenario, if this scenario did not exist, we would not have to produce this lesson twice.” Based on this, I can confidently say that “Scenario is one of the most important elements in the whole process (QAT3).

or wording, punctuation, language problems coming from raw contents,

I184: Yes, I talk to the scenario writer in the raw content. The scenario writer says that “you see it is so in raw content.” I opened the raw content, and realized it really was so. I reviewed the code in the raw content, and saw that the code was wrong; the scoring was not read. When there was no any attention to be paid to the grammar, the scenario writer continued in the same looseness. I picked it up from there and brought it back till to the production (DT2).

I185: Typos never ends in any way. Things we should not be obliged to check or the things need to be resolved before coming to us such as the length of the courses. After all, we try to explain what we aimed but we cannot. In fact, I think there are still mistakes in what we did. We say that we can continue in accordance with branching, the thing in the course of e-commerce. However, the evaluation at the end wants us answer them all together. I did not see that branch. Therefore, the questions about that branch should never be asked to me. Why am I being evaluated with those questions? Even if they did it, it was half-done, though (CT5).

or time extension caused by decision changes,

I186: You send the files to the sound studio, and the files come from there. You use them. You download the visuals from the library. You start using the visuals. Later, you may say that either this visual does not fit here or the voiceover is not correct. In fact, what we say should be expressed here not there etc. This is not actually returning to the beginning of the production whereas it actually means that you should go back to the beginning of the storyboard. So, look how far back you have taken the process. It should not be thought like “we took the process backwards so it is a waste of time” (DT3).

In fact, each job you did nurtures the next job; therefore, it is really important that the job is smooth, correct, appropriate, and understandable. Otherwise, the bleeding part enlarges. Thus shall I say: A rather smaller thing gets bigger and bigger so you end up with a problem something like a mountain (CT3).

then, unfortunately, the pre-production problems remained to the production phase and affected negatively the time and efficiency.

Intertwined and iterative ID process (15)

ID process of Bilgeleş MOOCs was really complex and like trial error based to find the most effective way under the current conditions. Generally, it is possible to claim that Bilgeleş pdMOOCs case included various intertwined and iterative processes in itself and also mini cycles for every decision for an effective ID process.

I187: Iterations were always in the process; there was an iteration in the raw, in the storyboard, and in the test. However, I do not remember there was any iteration going from the test to the raw at the beginning. All was in small little circles, and all iterations occurred within themselves (CT6).

Contrary to previous code, sometimes practitioners could be aware of some errors and changed their mind for some issues as looking at the big picture of MOOCs in pre-production phases. So, this created another challenge for the production process. One of the DT members gave examples for these kinds of iterations emerged from modification requests:

DT member stated that an approved flow or title in the scenario process should not be modified, and modification request in an approved content cause iteration (Content Development Meeting Minutes).

On the other hand, the approval and revision process of previous cycles might also affect the total course creation process and the production time could be more limited in those times.

The fact that the courses are being passed through multi-iterative revision process delayed CT's approval and caused the prolongation of the process (2. Interim Report).

I188: I wonder what would happen if things were skipped in the raw content because there were uncertainties. Or, maybe, we did not look well into the storyboard while approving, so we should ask ourselves why we want such changes in the production (DT3).

Lack of a sample MOOC to guide (4)

There was not a sample MOOC to guide for the practitioners in Bilgeİş project while ten pdMOOCs aimed to provide guidance. Unfortunately, nobody could state the 10 pdMOOCs had desired quality to be a guide or a prototype on the portal was ready for at least including some standard bases.

I189: One of the courses was determined by criteria. There will be at least this number of videos, or it will be like this or that. However, for example, we did not have any reservation as to how the quality of the raw content would be, how the screen transitions, or how the quality of the shots would be – whether in single or two angles. Since it was already very difficult to determine the criteria for them, and they were not determined already, it was very difficult to reach a common point or a common ground. Therefore, it took such a long time to develop the course and make it suitable for a single user to be able to register (APS1).

Besides, when PT needed some clarifications for production, they criticized the desired quality and expectation issues due to the lack of sample course which could be examples of the characteristic features and standard.

I190: Some friends particularly said, “let it be a successful one. I do not know; let us first see it. If you prepare something good, we can approve.” It cannot proceed this way. You give the samples and say that you should do it like this (DT2).

While all the practitioners suggested the same enabler for the ID process, to see a sample MOOC on the portal was in the late times of the project.

CT member said that it was mentioned some courses would have simulation contents, but there isn't until now even one pilot course, meaning that there isn't still a standard settled (Course Production Meeting Minutes).

CT explained their most important requirement. He said that having full functioning courses was their primary expectation. Without seeing full functioning courses, they would not be satisfied with the quality (5.MMM).

Inexperience for MOOC development (12)

The participants all had experience on OCW, LMS, or distance learning etc. but creating MOOCs for Bilgeİş project was a new phenomenon for them. So, integrating instructional media and tools, production techniques, accessibility, screen, player and portal design had to be thought for a healthy implementation. 12 of the participants stated that their inexperience was a barrier for MOOC and portal development.

I191: It is because, maybe, they did not do such a project in the sense of MOOC because MOOC needs some more details (CT3).

I192: One of them is our lack of experience. We teach a lesson or do something in a small scale but we have not done anything on this scale. We, perhaps, were not involved in the professional process of content production. We were inexperienced and this is valid for both sides – The spectrum was too wide for both sides (CT2).

4.2.2.9 Theme 2: Limitations of production

The one of the popular agenda items in production related project meetings was the course type (high quality and regular) on the project since development phase was regarded to identify course technical quality in terms of video shooting preferences, production techniques, an innovative screen design or other audio-visual design issues.

I193: Difficulty of the necessity of different production techniques and times for each content (SWT1).

There was a decision about 13 of Bilgeİş pdMOOCs would be high-quality pdMOOCs and the other ones would have regular quality standards. The following passage resembled a discussion related to production problems in this phase.

The moderator asked the participants that what the most primitive course was and what the highest quality course was. CT member stated that the 3D printing course should be a high-quality course but that the result from the production did not come like this. He stated that the 3D printing course was fine in terms of content, raw content, and scenario, but there were deficiencies in the production process and there should have been shots from different angles and different methods. SWT1 stated that there was no end to

what could be done in terms of shooting the lessons but it should have been examined considering the production time. He also stated that the 3D printing course is of high quality and target-oriented in terms of the knowledge it provides (Course Development Meeting Minutes).

CT member stated that 3D printing course should be a high-quality course, but result from the production didn't come on this level, 3D printing course content was correct from the raw content and scenario perspective, but there were flaws in the production process shootings, and there were supposed to be shootings with various angles and methods (Course Production Meeting Minutes).

On the other hand, the portal was not ready for a long time to test the candidate MOOCs on the portal since there were changes and decision changes for portal production. For example, the company which would prepare the portal has changed and the more dynamic portal structure was constructed.

I194: The constant technical distress on the portal was one of the situations that slowed down the process (SWT2).

Based on the results, this theme includes four codes: *1. Technical affordance and inabilities, 2. Low-quality video production, 3. Voiceover narration problems, and 4. Uncompleted production.*

Technical affordance and inabilities (10)

Ten of the participants stated that there were production problems that had direct effects on production. Especially, when an approved storyboard could not be produced due to the technical affordance and inabilities, both SWT and DT members got in trouble.

I195: A screen in an approved scenario appears to be technically challenging during production, and not knowing this until you start coding that screen (SWT1).

I196: In my opinion, it is definitely not working if the infrastructure does not support your studies while creating the course. Namely, you can use many different methods and designs throughout the process but when the platform where your course will be integrated and produced cannot meet your expectations, then it becomes definitely a non-working situation (SWT3).

Also, some technical details are presented in 5. Weekly meeting minutes had changed because of the technical insufficiencies and so this situation caused time loss and complexity in the practitioners' minds.

Information about certification process was overviewed.

Accessibility: One of the portal developers stated that Moodle follows WVAG 2.0 guidelines in Level AA and CT also agreed.

Non-functional specifications: The portal developer stated that VM and Debian systems would be used and CT approved it.

Software: Some technical details were overviewed and approved by CT. Portal Type is stated as Moodle (Modular-Object-Oriented-Dynamic-Learning-Environment)
Database will be MySQL, and Programming Language will be PHP.
Also, all Moodle plugins which will be installed on the web portal will support Model-View-Controller architecture (5. Weekly Meeting Minutes).

Low-quality video production (4)

Although low- quality video production problem was declared by only 4 participants during the interviews, discussions on meetings and test results generally focused on video recording errors. Since the high-quality course type should include high-quality video recordings, the participants focused on high-quality courses while they were talking about this topic.

I197: They shot the teacher in film from only one angle by putting the camera on the tripod during the whole process, so, of course, no one would watch him. I think it was the responsibility of the E-Learning Company. However, in today's world, everyone who shares the responsibility should think about it. He should be shot from various angles so that the screen should be changed. So no one watches anything, because it needs to be interesting or useful to watch (APS1).

Also, several project documents include the low-quality video production problem.

CT stated that some mistakes made during the shootings were not at the minimum quality level and the output should be checked and sent to CT (17.08.2017 Course Production Planning Workshop).
SWT1 said that there is no end about what can be done from the course's shootings perspective, but they should be examined taking the production process in the account, the 3D printing course has the quality and targeted content from the given information perspective (Course Development Meeting Minutes).

Voiceover narration problems (6)

In the Innovative Method Report, "Voiceover" means that "the training will be audible. Voice synchronization: It means that the audio files, prepared for the training, will appear on the screens, synchronically, in parallel with the information on the screens." There were several voiceover narration problems which were declared 6 participants and also detected by the initial and end-user testers.

I198: Some troubles could arise in terms of audio-related issues. Audio and video synchronizations were not exact, which in turn caused the follow-up of the lesson during the controlling phase and the prolongation of the process (SWT4).

I199: You know that there are texts for the hearing impaired as well, do not you? There are texts, but those texts do not always correspond to verbatim voiceovers. We had a complexity there too. You really need to see what the texts and the voiceovers are in the storyboard. If the following is expected in the voiceover texts in the storyboard, it should be found. We sometimes saw that (DT3).

There is a particular audio-related problem with screen recordings:

Sound quality and level are very low, The vocalist has diction problems, Sounds are recorded in “mono” (End User Test Results).

Uncompleted production (9)

Unfortunately, 9 participants identified their experience related to the unsatisfactory production phase. Due to uncompleted production, there were missing elements or parts still in initial testing. Or since there was a lack of basic controls of PT; QAT, CT and end-user testers determined lots of errors related to production.

I200: It is like an engineer. You have the formula. Whatever is there, I take it and put it here. If it does not work, it will not bother me. Everyone works so (CT4).

I201: I think the one produced the product – the one who created the screen did not look at the screen at all. It is required that he should look at it first. If the visual is put in that corner in the scenario, then the product should be placed there. If there is visual a design in that screen and if it should not be there, take it and place it on the other side. The man in the product did not even do that. He just said that “use this visual in the scenario.” It does not matter where you will put it. They did not interfere in these issues either. I would rather like to interfere in that (CT5).

Theme 3. Problems of revisions

Similar to raw and storyboard preparations, there were also revision problems but differently, the revision phase of production and initial testing phases were longer, more complex and including more testers. To define this process one of the researcher notes could clarify:

- The “course completed email” is received.
- The candidate MOOCs on the local server was ready to test.
- The QA tests are completed by QAT, then CT.
- The revisions are done by DT.
- The second version of candidate MOOCs was ready for approval.
- After approval, the MOOCs are uploaded to the portal.
- QAT and CT tested the MOOCs on the portal.
- The second revisions are done by DT.
- The initial end-user tester tests the MOOCs on the portal.
- The last revisions are done by DT.
- The last version of MOOCs is released on the portal.
- The beta test phase is begun.

PMT summarized the process of courses from production to end-user;

Completed courses go through the control of the QA team and then the OCU. Then courses are sent back to the vendors and revisions are being made. The courses from these stages are published as Moodle candidates. Moodle candidate courses are rechecked by the QA team and sent back to the manufacturer. Finally, vendors pack the courses and upload to the portal as private mode. Courses in private mode are being tested by the QA team. QA team check the assessments, evaluations, technical specifications and

certification processes. Lastly, end user team tests the courses and sends the test results to OCU. After PMT summarized about this complex process, she asked the question of how these complicated processes can be shortened (13. MMM)

Generally, the barriers of revisions were determined by PMT like following:

- Items that strain the process.
- Production Controlling:
- Changes affecting all voiceovers throughout the training
- Changes in the names of the training.
- Adding screens
- Voiceover text change as a result of extensive content change
- Content change
- Removing of and adding characters
- Additional green screen shooting
- Additional screen capture videos
- The fragmentation of the produced training; its division into new parts
- Cartoon style character movements
- Moodle Candidate: Any of the revisions specified by the TAT team as three
- Moodle Candidate: Revisions added to other screens not included in the primary control.
- Moodle Control: Any revision regarding content screens (24.03.2017 PMT presentation).

From the DT and SWT side, one of the main problems was subjective testing of CT and QAT.

I202: The revision forms filled in quite differently by many people attending in the first classes and the beneficiary's difficulty in convincing that these forms should be single (SWT1).

I203: Looking at it from the point of view of the team controlling the courses, the reason for the prolongation may be the effort to carry out the controlling in detail and meticulously. The course checks occasionally exceeded the planned time, and the team ignored these prolongations in terms of the welfare of the controlling. In addition, the work carried out with the control person and team during the control phase can also extend this period. For example, the team can come together and discuss, negotiate, exchange ideas, and take some decisions on a few points during the controlling phase. This and such similar situations may negatively affect the time period (SWT_DT3).

This third theme of production and initial testing phase includes 6 codes: *1. The too-long testing process, 2. Subjective and superficial testing, 3. Lack of cooperative Study with the other teams, 4. Lack of a comprehensive standard rubric, 5. Previously reported and not solved errors, and 6. Unable to do some revision items.*

Too long test process (10)

The testing process was really time-consuming and it was defined as a barrier by most DT and PMT. The hindering negative factor of this situation was the difference between CT and DT's viewpoints. For instance, if CT and QAT thought a screen was problematic

(unclear, open to misunderstandings, etc.), they could want reproduction, however DT's logic was like the following:

I204: Yes, that the logic of “we can turn back” does not work; it does not really work because the production team does not contribute adequately. Think of the production team as a worker. Assume that there is routine job chain, and the production team produces the product as quickly as possible (SWT_DT3).

The following quotations also resembled that too long test process:

PMT again underlined the importance of the list of requirements in order not to lose time in the production process as CT mentioned that they are losing too much time during the content review process. CT underlined that if the quality of the courses in terms of functional correctness is high enough, checking process will be shorter and they would save their time (5. MMM).

The delaying reviews affects production. Even if the reviews delay for one day, considering the entire work done, it makes 90 days for 90 courses; and this causes a problem within the already limited and intense time planning). One of the DT leaders said that these problems could be caused by the tries to implement many revisions simultaneously in a limited time, and this situation is very challenging for the production side (Course Development Meeting Minutes).

One of the APS members explained this time extension could be emerged the number of testers on CT. Since they were 8 people to test and approve all the 100 courses, they could not catch up the due dates.

I205: We thought that the revision process of the project would take such a serious amount of time, but it was short and it should have been more. There should have been at least 8 or 10 -12 (APS1).

Subjective and superficial testing (20)

The majority of the participants did not believe that there was objective and practical testing due to some unstandardized testing problems.

I206: One of the most important reasons that make the process difficult is that, for example, the quality assurance team exists to control all these things; that is, to check the scenario and the content while the CT team is there to give the approvals. It was a waste of time for us to get back during the production phase. You naturally start it by thinking that it has already been controlled by the others, and now I start doing it. However, when you do not receive the approval of what you are doing, then your motivation decreases. So, this is one of the problems (DT2).

Also, 13 of participants stated that the testing phase could be identified as insufficient due to the subjectivity of the testers:

I207: I do not think that the quality assurance team is very competent in these matters. I got my report one day and perused at it. It was written, if I remember it correctly, that it was about the writing style of “and.” You know that in titles such conjunctions as “and” are written in lowercase letters. Our friend's feedback was that “it should have been written with an uppercase letter.” It was a finished video by the way. I sent to him the articles in the official Turkish Dictionary, claiming that if you looked at these articles in the

official Turkish Dictionary, you could see there. So that was the image I received from friend who approved (DT2).

I208: So, after all, you can guess more or less from us, who is controlling it even if its name is not written, so if we check a package today, you will understand who is controlling it from us, and we more or less "it comes from" started to be like this. . Because there are subjective aspects of it (QAT4).

Lack of cooperation with other teams (10)

Except for all other factors, the nature of this process had its own difficulties related to the lack of cooperative study among the teams.

I209: Difficulty of the developer and production teams in reaching an agreement on common standards due to their various educational backgrounds (SWT1).

I210: That [the developer] is another stakeholder team. In other words, this is a team that was not involved in the event from the beginning, in the design of the project. Well, it is actually as the same as in the companies we work with. The software team always sees itself different. There is no such world. What we do is content development. I think that it is not much different from a software development business. So I think there is a need for a shared point of view there (QAT1).

Lack of a comprehensive and standard form (5)

Interview results showed that there needed to be form or rubric which include all phases works, outputs and quality criteria set. The standard structure of this form could help different testers in terms of comparing themselves with the other testers or making suggestions for other testers. So, lack of these kinds of forms in the process generally caused unobjective and invisible testing-revising process.

I211: There was such a comment as "If only at least one document should have been sent to them, and if only there was a cooperation between them". It is added that "do not do it again, or if a higher authority such as the quality assurance team could have controlled." For instance, the duty of quality assurance team here is bring all the documents coming from the delegations into a single level of quality (APS3).

Although Interim reports showed the same problem, there was not still a proper solution which everybody agreed.

Technical forms have been created to follow the technical problems that arise within the project. These forms are followed through the Project cycle easily (3. Interim Report).

Unable to do some revision items (16)

A similar pattern had been found for the other phases as well; PT leaders noted that unclarity in revision items and MEE problems were the major 2 factors affecting the productivity in the revision phases of MOOCs. If there were unclear identification of

the errors on the test results, as 10 participants declared, then important barriers emerged like uncertainty for DT.

I212: I wonder what would happen if things were skipped in the raw content since there were uncertainties. Or, maybe, we did not look well into the storyboard while approving, so we should ask ourselves why we want such changes in the production (DT3).

I213: According to him, teach it the other party. Do not do this at least, right? For example, I did not like it; bring something else. Well, I did not like this either. I think this is an infinite variation (DT2).

8 of the participants focused on there were lots of previously reported and not solved errors:

I214: Yes, I talk to the scenario writer in the raw content. The scenario writer says that “you see it is so in raw content.” I opened the raw content, and realized it really was so. I reviewed the code in the raw content, and saw that the code was wrong; the scoring was not read. When there was no any attention to be paid to the grammar, the scenario writer continued in the same looseness. I picked it up from there and brought it back till to the production. In other words, the person in the production turned to the person who did all the controlling on the raw content (DT2).

I215: In other words, measurement and assessment started to go towards the end as the additional materials started to turn into the last thing to be interested in etc. It brought many painful processes with itself. That is, the thing that we solved, the one put it on the Moodle later, might not be reflected to you because there was no such thing as an additional material approval process. It was surprising for us (QAT3).

The barrier of unable to do some revision items was attributed to the decision to reduce the revision process to two and to revise only the items there.

The second review process must entirely be removed. Instead, the first revisions given must be more specific (Course Development Meeting Minutes).

4.2.2.10 Theme 4: Cons of end-products

As a result of many pre-production, production, and revision problems, there were lots of errors and problematic issues on MOOCs and MOOC Portal. One of the least stated in the interviews, but the most desired issue was accessibility in the whole project process. Unfortunately, the initial test results showed that there were many items including accessibility-related problems. As an example, two end-user test document parts were presented in below:

Subtitles are used to meet the standards of accessibility in the videos about lecturing but the subtitles are not given in full or at all in the applied sections or interactive sections (e.g.: Lecture-1: in the 9th, 10th and 11th videos). The "Subtitle Options" button is not visible in the lower bar of these videos.



Giving the text under the screen in videos closer to the video will help the user to follow the text and the interactions that take place in the videos. As such, it is difficult to follow both the texts and the interactions in the videos using the step-by-step approach or in the interactive videos (End User Test 1).

The information transmitted as audio in the Mobile Application course's introductory video is not presented as having subtitles (End User Test 2).

Moreover, the similar problems in the other phases' test results were found again in the last version of the MOOCs and MOOC portal. Specifically, some player and portal problems were permanent, and all the teams were trying to find alternative solutions to decrease the errors.

Problem: Workability in different browsers. Solution: User requirements statement to be add on the Moodle (1. Interim Report).

Moreover, sometimes if there were good and quick solutions for some errors, they could not be done due to the project restrictions. For instance, the challenges of mobile-friendly design of the portal were a trendy topic in the meetings. In the innovative Method Report, Mobile compatibility “that the training can be run on the supporting mobile device browsers”.

I216: There are restrictions coming again from the side of technology. You know, everything is not on the big computer screen. Moving towards mobile is a challenge (CT2).

The cons of MOOCs and MOOC portals were summarized as interview results indicated in 4 codes: *1. Player problems, 2. Portal limitations, 3. Accessibility problems and 4. No social interaction among learners or instructor-learners.*

Player problems (3)

The player developed by E-learning Company had many problems according to CT and QAT members since they thought it was not developed specifically for the Bilgeİş project.

I217: The applied technology does not meet our needs. It is not old but it looks as if it was chosen wrong. Or, it is as if they were chosen without paying much attention, or they already had it so they used it. It was their own production systems. We are an outsider, after all. They use it but it is like we want something new (CT1).

So, the needs and planned issues for the MOOCs could not be possible due to the player limitations. For example, the comments related to interactive videos from the initial test results were presented in below:

In some of the interactive videos (e.g. Lecture-1: 9th, 10th, 11th video, Lecture-2: 3rd video, Lecture-3: 9th, 10th), there is no video progress bar. Therefore, the user does not have the opportunity to stop and start the video at any time.

In the videos that make the user do something step by step, there is no return when the user wants to go to the previous step or change the choice they decided (e.g. Lecture-1: 10th video).

Unfortunately, the player-related problems were quite a lot, so a summarization of combining some test results and researcher notes created the following issues.

- HTML5 player completion percentage becomes two lines at 100%.
- HTML Player dictionary tooltip problem
- Adding subtitles for videos in the player, changing the background color, text color, text font
- Adding note-taking feature to the player
- Adding the dictionary feature to the player
- Adding the search feature to the player
- Adding volume, refresh, caption features to the player
- When you do backspace in HTML5 Player, the appearance of both pages on the screen
- When the screen is completed in HTML5 player, the red bar on the margin of 100 should be decreased in size.
- Need an improvement to add subtitles to interactive screens
- The issue of the subtitles over the video
- HTML 5 Player Vimeo integration

Portal limitations (14)

Although the portal had been constructed and updated several times, there were still problems detected by testers.

I218: I think the portal can be counted among the top 2 in making the process difficult because you have to plan everything according to the portal without exception. Sometimes, you can even prepare the areas which do not match with the portal from the beginning (SWT3).

I219: It would have been better if we had gone and got edX's ready-made portal, or it would have been better if a new portal had been developed from the beginning. It sounds very confusing to me. Even though I am in this business and if it seems confusing for me, I cannot think how it appears to the average people (CT1).

As stated in the PMT presentation below, the portal covers many issues like usability, providing social interaction, roles of users, course categories etc.

Features of the Portal

- Combining the structure of the portal and the Moodle
- Putting the player in the center
- Dynamic Structure

- Category
- Areas of expertise
- Labelling
- Editing the top menu structure
- Sharing on social media
- Online messaging between the users
- Guest and course registration role (18.01.2017 PMT presentation)

Also, the Moodle itself had some limitations and therefore it affected the desired quality in Bilgeİş MOOC portal.

I220: There are problems with infrastructure. Why? It is because of the portal. As I am dealing especially with Moodle, when you look at it technically, yes, we can say that the Moodle is a nice thing, but the Moodle is not a structure made as MOOC. Actually, it is not suitable. It is not appropriate in that way; if you are going to teach a standard Moodle course, it may be very nice, yet the Moodle needs to be overhauled. I think that the Moodle is not enough for this type of project with its open source part. A separate infrastructure could be written for this (CT3).

There are some errors found in the new Moodle structure; For example, because of the bootstrap structure used by Moodle, it cannot go back to the main page after entering Moodle. The login with Facebook function is not possible due to version differences (9. MMM).

The key experts of portal development presented the developments in the process of Moodle as in the following items. As of its structure, Moodle does not allow to make many functional changes but changes in the direction of what CT requested and anticipated in sense of design (Course Production Planning Workshop). Unfortunately, the portal related problems were quite a lot, so a summarization of combining some test results and researcher notes created the following issues.

- Videos appear to be low resolution in IE11
- The issue that dictionary explanations do not fit into the space
- Pdf download status
- When the PDF screen is first opened, it first appears blocked
- The white line appeared on the right side of video screens
- Sound interruptions due to video events
- Ability to do searching in transcripts
- Ability to delete notes
- Making the buttons for video playback legible for the visually-impaired
- Defining page titles as headers
- Making the progress percentage statement legible for the visually impaired
- Adding keyboard shortcuts
- Correcting images that cannot be read by the vehicle used by the disabled and making it available for reading with the vehicle.
- Refresh error problem on pages
- Changing the events in Moodle for interoperability in mobile environments
- Moodle to see the player from a single point
- Creating and downloading transcripts

Accessibility problems (4)

The project meetings and documents had lots of evidence about the importance of accessibility.

Accessibility: One of the non-key experts stated that Moodle follows WVAG 2.0 guidelines in Level AA and CT also agreed. (08.02.2016 Weekly Meeting Minutes).

The CT made a presentation indicating the expectations of the CT. They highlighted the following main points for the key activities. Courses should be very innovative, and the participants should be using these courses actively. Disadvantageous group's access to the courses is an important task (17.12.2015 Kick Off Meeting Minutes).

However, test results indicated there were several accessibility problems.

I221: What we wanted from our player was CT' and especially the academics' the know-how in the literature such as "How is this done?", "How should this player be?" In general, when you want subtitles, I do not think the subtitle is suitable for whom. I do not think that they consider the suitability of the level. It should be in line with the international standard. The writings will be on the right and the menus will be on the left. They had to go through an arrangement. They were not able to use their usual players (CT3).

CT representatives talked about the subtitle problem which is an important point in terms of accessibility. He stated that the first 10 lessons should have subtitles in the interactive screens in addition to the voice text. SWT1 stated that certain improvements have been made in HDMI5 displays but these revisions are very difficult to implement. In addition, He stated the end user can understand this issue with the "Orientation Module" in which how to use the portal, how to take lessons, and how to use Moodle topics are covered (Course Production Planning Workshop).

On the main page and other pages, changing the screen colour and magnify / reduce the text feature should be added. This is important for visually impaired individuals. Individuals with low vision also differ among themselves. Vision (visual acuity or visual field) varies. Also, those who are colour-blind cannot see anything if the webpage consists of heavy red and heavy green. The most effective way to prevent such problems is to allow the user to modify the page colours themselves. It is expected that a minimum of 4.5: 1 contrast ratio between the text and visual items on the internet site and the background will be achieved. It should be noted that lower contrast ratios reduce the readability. However, it is recommended to use a 3: 1 contrast ratio for large-scale images and visual items. Contrast ratios do need to be provided for corporate logos and images used only for design purposes. Colours contrast tests are available online at http://snook.ca/technical/colour_contrast/colour.html (Accessibility Test Results 2).

No social interaction (12)

Although the innovative method suggested the interactivity and communication for MOOCs and the portal, some decisions of the practitioners did not allow some of these social interactions due to the possible socio-cultural problems or project limitations.

Collaborative and interactive activities increase the quality of online learning, by providing learners a sense of belonging to a learning community and by active engagement in a learning process. Instead of passive listeners and readers, learners became active participants and are in a centre of learning process. Also, the courses are expected to provide evaluation activities and interactive user forums to support communication among learners and/or trainers. Courses' writers and courses' storyboard writers and developers need to combine instructional design with platform functionalities to maximise options for collaborative and interactive activities. Following learning activities are recommended to be included in an online course: to

study a content, to answer learning questions, to complete exercises and tests, to discuss with other learners in thematic forums, to search for additional learning resources, to solve tasks and to publish results, to collaborate and work on group projects, to reflect on a content, a learnings process and learnings by posting blogs, to complete assignments, to evaluate peers' assignments(Innovative Method).

So, this code had two dimensions. First, mentioned by 8 participants, was related to the lack of social interaction among learners on the portal.

I222:After all, people attend voluntarily but they should not be isolated there. There may be some people who want to be isolated. For example, there may be some people who can say "I do not want to socialize so I attend online classes." Nonetheless, we should give this opportunity to them. if he does not want, he will not (CT1).

I223: He will definitely have some questions. What will the man do when he has questions? He listened to the course and will ask something. To whom will he be asking that question? No, there is not such institution (SME1).

The second factor, mentioned by twelve participants, was related to the lack of social interaction between SMEs and learners.

I224: I prepared the course and I threw it into such a sea, so to speak. No more news from the course anymore. After the course, does the instructor receive such questions as "What kind of comments is received about it?" "How many people took it?" or "Did anybody say anything negative for the course". Maybe, someone said "how much technique was involved in the course so we did not understand anything." I do not know if there is such a feedback mechanism (SME1).

I225: Either it should be with the instructor of the lesson or it should be with the people who know the subject. However, one will write a question he wondered and its answer will be given after all. It is clearly better to receive it on the forum, especially. Ideally, he will have done it by himself. I will not know the inside of the business. Someone who knows will say that if you do this on the light bulb, it will turn on like this. Or, he will say that this light bulb is sold at OSTİM or Hepsiburada.com; buy that one and you will do it more comfortably. He will go and buy it and he will be satisfied with it at the end. It does not matter from whom he got the information. The important thing is for the man to get response for his question. There is not even this one. Say, I am talking about lights over there but there is no place to ask where I will get these lights. Your information desk does not know it either (DT1).

E. Organizational Issues

Organizational issues mainly include the project related issues. The project's scope, budget, time, technical documents and the all other limitations could be affected on the ID process were identified more exterior and covering all processes factors. Therefore, the effectiveness of MOOCs ID process depended on many organizational dynamics. It is possible to claim that generally there were negative factors which create barriers for more effective ID process in Bilgeİş case. As some examples related to how project planning could affect the project works was given in below:

Description of Implementation Phase Activities And Revised Schedule. Some activities' durations and schedule has been changed. TAT has decided to start the urgent activities in advance in order to gain time. TAT also indicated that they had been already broke down some activities for proceeding more effectively (Inception Report Review Workshop).

In the ToR of the Operation, the overall project duration is set for 20 months. However, throughout the process, it was understood that the proposed completion date became difficult to meet. Due to the nature and scope of the contract differentiating drastically from other Technical Assistance contracts as well known by all parties involved in this process, the Operation needs to overcome a number of challenges associated with the implementation of activities, especially with regard to the delivery of the online courses (Request for contract modification 15.03.2017).

Subsequent identification of sub-work packages in the project has put the project into trouble in time, and this has been eliminated by increasing the number of teams (Final report).

On the other hand, although Bilgeİş project case resembled an instructional design project of MOOCs in fact, sometimes it was impossible to the change conditions for more effective ID process due to the some socio-cultural, communicational or psychological dynamics. For instance, using an effective PM tool was highly suggested by many practitioners in the project lifetime but then a tool (Bitrix) that was not very useful has been started to be used. So, some important issues in PM like following tasks, dates, works and approval process were tracked by excel documents which turned into complex tables accessed by a limited person rather than every practitioner.

I226: For example, if we used another tool, I would have said that we had done something innovative. In the instructional design, we sent the scenarios prepared on a certain template to each other as e-mails. If we kept them in a cooperative environment, if we edited those scenarios there, or if we had a joint editing time and contributed jointly, I would have said that we had done something innovative about that process (QAT1).

As negative factors related to organizational issues, six themes emerged from the analysis: *1. Shortcomings of Project Management, 2. Barriers to Quality management, 3. Inadequacy of human capital management, 4. Limitations emerging from the nature of the project 5. Ineffective Organizational Communication, and 6. Perceptions and Expectations* (See Table 4.19).

Table 4.19 *Negative Factors*

Theme	Code
1.Shortcomings of project management (68)	1.1. No good planning (10) 1.2. Time Limits (11) 1.3. Budget Limits (7) 1.4. Too extensive scope of the project (5) 1.5. PMT related issues (9) 1.6. Lack of a useful PM Tool (14) 1.7. Lack of standard process and documents (12)
2. Barriers to quality management (27)	2.1. Insufficient number of QAT (2) 2.2. No QA Leader (5) 2.3. No independent working environment for QAT (6) 2.4. The extensive workload of QAT (14).
3. Inadequacy of human capital management (61)	3.1. Unclear or wrong distribution of tasks (19) 3.2. Lack of some Non-Key Experts (4) 3.3. No Experience in MOOC Instructional Design Project (14) 3.4. Many people to manage (6) 3.5. Lack of orientation of the people/firms in the Project (5) 3.6. Lack of guidance for the junior members (10) 3.7. Complications depending on outsourcing (10)
4. Limitations emerging from the nature of the project (91)	4.1. E-Learning sector capacity in Turkey (11) 4.2. Type of Project (12) 4.3. Too general technical documents of the project (27) 4.4. No sustainability plan (11) 4.5. Lack of a project consultant (1) 4.6. Limited Incentives for CT (8) 4.7. The high pressure felt by CT for being the control mechanism (9) 4.8. University Prestige (12)
5.Complicated organizational communication (68)	5.1. Wrong communication channel for negotiations (24) 5.2. Many people to communicate (11) 5.3. Email Traffic (4) 5.4. Not effective communication in monthly meetings (8) 5.5. Wrong Communication (8) 5.6. Lack of common language on ID process (5) 5.7. Not being able to communicate (8)
6. Perceptions and expectations (75)	6.1. Pre-Assumptions of teams (6) 6.2. Previous Experiences of teams (10) 6.3. Different priorities of teams (13) 6.4. Self-censorship of CT (5) 6.5. Different Expectations of teams (18) 6.6. Unclear Expectations of teams (9) 6.7. Unrealistic Expectations of teams (4)

Theme 1: Shortcomings of Project Management

In Bilgeİş Project, there were lots of project management related problems which were generally arising from time, budget, scope and planning limits and the executive members' strategy related.

I227: The most important thing that makes the process difficult in terms of project management is that the whole process is not clear from the beginning of the project. The fact that all steps from the raw content to the end of the production were not clear and assigned to specific individuals definitely affects the process

negatively. Even if the course is produced without any problems, the whole process can be negatively affected since the process until it is placed on the portal is not clear (SWT3).

I228: The problem was loose management (SWT2).

To solve the project problems as just as a PMT was very hard and their change management strategy, organizational and social skills were very crucial for a healthy and effective implementation. Except for the nature of project-related problems, the shortcomings of the project management theme exclusively on issues was up to the project managers. Similar to the following example, the interviewers claimed that some shortcomings emerged from the decisions and strategies of PMT because there were very clear limits including project identification at the beginning of the project.

I229: Besides, the model and subcontractors chosen for this stage of the project were not ideal, so the radical change management followed immediately (PMT1).

As the codes of the current theme, 6 topics were raised from the results: *1. Not well planning, 2. Time limit, 3. Budget Limit, 4. The too extensive scope of the project, 5. Team Leaders Related, 6. Lack of a useful PM tool and 7. Lack of Standardization.*

Not good planning (10)

According to the practitioners' views, there was not well planning in terms of several issues about ID process. For example, there was a lack of a well-planned analysis study,

I230: I mean, for example, there is nobody who informs us clearly about the details regarding that if you take these 100 courses, it will last until this time. There was not anybody who said we should have planned it in such ways because there were studies conducted before or such people had done this before in this way. Everything was done by guess and prediction (PMT4).

or needed assumptions and planning, considering the time and budget limits.

I231: Yes, they did not make a good plan. They were not able to predict that how difficult e-courses development was and the process would not be an easy process both in terms of resources and time (APS1). The different versions of Final Reports of the project were also included the entire work package of the project could be fully described at the beginning of the project.

Time Limit (11)

It was noted during the observation that everybody was unhappy and stressful due to the time limit.

The most critical part is the development of 100 courses in desired time and quality. The target group requires an envisaged level of attractiveness and quality; however, the whole activity is critical considering very limited time available (Interim Report).

As stated in the third Interim Report included and 11 of the participant's disclosure that there were quantity and quality paradox due to the time limit.

I232: To provide all the demands regarding the quality of the courses before the beginning of the Project, Extend the time. In my opinion, the project should last at least three years (PMT1).

I233: If we were Coursera, it is very likely that we would have such a system, informing the users about at what stage they are in their course or what is happening at that moment. We had time constraints on one side. Should such a system be created? How should such a system be? Should it be a system that can be customized according to our needs? To be frank, it was not run after because if you dealt with it, as I said, if the duration of the project was a little longer, maybe it would be good to do something like that at the beginning to follow the process (CT2).

On the other hand, the majority of ID process problems were derived from the time limit.

The moderator asked the participants how many courses could be produced simultaneously for the remaining 90 courses if looked at it parallel. SWT1 stated that 10 courses were produced in last six months by that time but for the remaining 90 courses, 10-12 courses were required to be produced within a month, considering the remaining time. He stated that this is not due to a capacity problem but because of time constraints and process problems (Course development workshop minutes).

Budget Limit (7)

The budget limit of the project created many project management shortcomings since the budget had several dimensions affecting project work packages and outputs.

The fact that the authority to use project resources is entirely in the consortium and the unbalanced distribution of the budget allocated to the project activities affected the quality of the project outputs much. For example, the budget allocated to the visibility of the project was considerably higher than the budget allocated to the project output which was for the development of 100 courses (course processes such as creation of the contents, scenario writing, voiceover, required software-hardware procurement, production, video shooting). In this case, it is possible to say that there is a problem related to the production of courses with a higher quality due to budget problems. On the other hand, the technical infrastructure that CT will need in the course development process was provided only at the end of the project. Quality factors for the project outputs should be determined before the project begins and a joint decision should be taken about the expenses to be made especially on some technical issues. In addition, the process must go faster for any tools such as software and hardware to be supplied to CT. The beneficiary team must have the necessary technical infrastructure from the beginning of the project (Lessons Learned Document).

While balanced budget distribution was a source of motivation for practitioners, a perceived insufficient budget could be the reason for some shortcomings.

I234: The budget of this project is unfortunately not at an adequate budget at all (PMT3).

I235: In the budget breakdown, they allocated just 10% of the total budget to the development of the 100 courses. We had some discussions at that time. I also brought this problem up. I brought this by thinking the end of the project. You put this in the annex of the inception report but we do not accept it. When you have to make deductions, they turn out to be 2800 euros for each course for 100 courses, which is a very

low cost when we consider the total budget of the project. While designing terms of reference (ToR), if is a new e-learning ToR project, it is necessary to put the details in different parts of the ToR, explaining about the need to transfer more resources to e-learning (APSI).

Too extensive scope of the project (5)

Although the scope of the project was already known by all team members, some details and the perceived difficulty about the scope was one of the shortcomings in Bilgeİş project management.

I236: Management challenge due to the need to develop a large number of concurrent content (SWT1).

I237: You remember I was always saying quality versus quantity in the meetings. Now, 100 is too much, too much (QAT1).

Team Leaders Related (9)

First of all, there were team leader's personality and socio-cultural features related perceptions in the practitioners' heads.

I238: If the manager could look through inside the work a little more, it would have made the process easier. So, instead of just saying what is finished from the outside or, let us say, instead of saying there three or 5 days remained, I think that he should have been more attentive to what you did and how you did it (SWT2).

I239: PMT's organizational ability was somewhat remained below the expected level. It could be expected that there would be someone more social, more sociable, and more motivating. He could not motivate the team much. Okay, his technical knowledge can be very good or he could apply it in his own country perfectly but, in Turkey, he was not much successful in terms of mobilizing the teams (CT6).

Due to the following explanations in the Final Report, the changes on PMT also affected the ID process.

Due to extraordinary conditions in the country, the Team Leader who has been working since the beginning of the project resigned from her position on August 2016 and returned to her country. The appointment of the new team leader, the interviews, the approval processes and her integration to the project lasted for about a month and a half. This situation also has an effect of the delay in the project as well (Final Report).

Lack of a useful PM tool (14)

It was impossible to track and follow the outputs and process in a healthy way in the project since there was a lack of an effective PM tool.

I240: There is no a process tracking system. There is a portal working entirely through e-mails but I do not think that it is used efficiently. It was the first time I used it and we only used it for uploading the documents (SME2).

I241: Yes, since this is a software project, not using a project management software is a serious challenge. It should not be just Bitrix. The administrative program of software projects should also be implemented because it is something that we can use very simply and with a very small fee. It would be easy to follow up the work, too. For example, I open all the incoming mails every day. It is a big deal – 3 hours a day or something, but if I used a project management software there without opening those emails in order to see

whether things were assigned to people, done or not done; in other words, if I only looked at the items that were not covered, that is, what really interests me, it would be much easier for everyone (PMT2).

Lack of Standardization/No Standard Documents (12)

Generally, the practitioners thought that there was no standardization in terms of documentation and process identification.

I242: Since the expected things that should have happened at the beginning were added later, everything was done from the beginning (SWT3).

I243: The system of “it goes along and we see what happens” is not an appropriate method (QAT4).

Besides, the prepared standard documents could also include standard and detailed specifications. This view was echoed by another informant in the Course production planning meeting.

One of the members recommended that specifications should be defined more detailed, and a plan including scenario and production processes should be realised (Course Development Meeting Minutes).

4.2.2.11 Theme 2: Barriers to Quality Management

Another reported problem was about quality management in the scope of organizational issues. There were some negative comments about QA management and also QAT's planned work structure in the interview results and the researcher's observation notes.

I244: To establish the quality of something, you first need to settle down its processes. In order to be able to speak about the quality, there must first be a process and if it is a process that functions properly, we can mention the quality then. This is valid for our project, too. Throughout this project, we tried to settle down the processes (QAT1).

Sometimes, it could be observed some misconceptions between quality criteria and expectations of the teams. Since every course had an approval process by CT, their expectations could be perceived like quality determiner. Because each team was asked about their expectations and trying to set standards accordingly at some meetings. Unfortunately, this was not an effective method for each course making process or for evaluating the lessons.

She showed the content production table of the raw content starting from the beginning of the Project in order to show the complexity of the process for every single course. Since time constraint is a pressure for Project, PMT asked everyone for possible solutions to ensure success. Firstly, she suggested CT that they may create a list of 5 most important requirements for all courses as final product since none of them is approved yet. It might help the development team to come closer to the requirements beside comments received. So that, production process may be accelerated and CT and TAT may be on the same page (S. MMM).

According to the analysis, the second theme of organizational issues, Barriers of Quality Management had 4 codes: 1. *Insufficient number of QAT*, 2. *No QA Leader*, 3. *No independent working environment for QAT*, and 4. *The extensive workload of QAT*.

Insufficient number of QAT (2)

QAT and some participants of CT appeared to be negatively affected by the insufficient number of QAT. Although it was clear that more workforce is needed for such a large workload, only four seniors were hired, and sometimes they had to train their juniors.

I245: I would consider allocating a larger group for the quality assurance team, not 1 person, 2 people, or 3 people (QAT3).

No QA Leader (5)

QAT had been involved in the process at the latest time of the project, and so need of a team leader observed. Because every team member had her/his own criteria and perspective related to testing the raws, scenarios, and courses whether there were some basic guidelines for quality assurance. Also, based on the observations, there was a lack of coordination between the teams and the responsibility of general communication with the other members of the project. One member of the QAT stated that:

I246: We did not have someone coordinating us with the content experts (QA2).

The problem of “no QA leader” referred to many other subproblems like subjectivity, misinformation and uncertainty. One member from the APS also declared that there was a need for a big eye to ensure healthy working.

I247: For example, a comment is received by one study coordinator or another tender expert, but the other one is not aware of it, but this is the main duty here. This comment was given to another project, or to another OYS was given this comment. It is like “take this into consideration.” So [QA team] could have a top eye (APS3).

No independent working environment for QAT (6)

QAT had a mediatorship role in the ID process and project organization. Although they were a team working under PMT, they had to be independent by their job descriptions. This would only be possible by providing an independent working

environment for them. So, this code explained why sometimes they could not be objective enough.

I248: The human factor is very important here. Due to our position, we are with the producer company, they are the people with whom we are face-to-face. That is why, you cannot turn much into a fight because those people are working with you. However, maybe, it would be much better if we could work completely separate from them, objectively, and independently. After a while, we learned about their cons and pros, so our comments inevitably could not be objective. For example, we started not to write what we know they cannot achieve because we know that this is beyond the company's capabilities. However, these are things under normal circumstances (QAT3).

The extensive workload of QAT (14)

While the Innovative method suggested the quality assurance activities which should be done by QAT, unfortunately, these activities had several negative dimensions and difficulties in terms of not being able to manage the quality assurance and create standard independently.

quality assurance experts' role should be to create following quality assurance documents and to use them in quality assurance activities:

check list of criteria that user interface needs to fulfill

check list of criteria that online tutoring process needs to be contained off

check list of criteria that course materials have to fulfil (Innovative Method Report).

Like the explanations below, QAT had many responsibilities and several roles in the process related to their number, working strategy, decisions and principles, or standardization process etc. So many participants claimed that QAT had extensive workload and this was an important barrier for effective QA management.

I249: It is in your first reaction. When you send a paper to a journal and receive the reviews, you should first check if it is rejected or it is asked for minor revision. Wait a little bit, digest the response, and then go over the reviews. It is the same. It is useful not to react immediately but first digest. I personally realized this: Nobody wants to see, after the revision, that his paper comes and goes in terms of raw content. I know my team mate, too. We together did the revisions although we are in quality control team. In other words, when it was done in a clear way in a table and then other things were asked for to revise later, I think it is not a pleasant method (QAT3).

I250: What could possibly be tiring for us? Maybe, it is the changing of our roles in a relatively short amount of time. On the one hand, take on the role of SME and quality assurance team member, and on the other, examine the content and make corrections on scenario and in supplementary material. So it becomes a little bit tiring (QAT4).

Theme 3. Inadequate Human Capital Management

Concerns regarding inadequate human capital management were widespread. The source of any kind of ID problem was almost related to this issue.

The lack of competence and commitment of all experts involved in the project has led to a change of experts and an increase in the number of experts in the project execution process. All experts involved in the project must have a high level of competence and commitment. A sufficient number of experts should be actively involved in the project process (Lessons Learned Document).

This theme also came up for example in discussions of insufficiencies management of the practitioners in terms of number, mission, role, or experience related issues. An APS member thought the main factor of the ID and project problems was the insufficient manpower.

I251: The main problem was that the E-Learning Company allocated less staff (APS1).

Under the current theme, five codes emerged from the analysis: *1. Unclear or wrong distribution of tasks, 2. Lack of some Non-Key Experts, 3. No Experience on ID Project, 4. Too many people to manage, 5. Lack of guidance or orientation, and 6. Outsourcing makes works complex.*

Unclear or wrong distribution of tasks (19)

The majority of participants agreed with the statement that they had no clear job role in the ID process. Moreover, they also indicated that they worked for their teammates' or other team members responsibilities for the whole process. When the possible reasons asked to them, they stated they felt that unclarity or wrong distribution of tasks. So, they could not manage their own or extra works.

I252: One thing to do in the process descriptions of instructional design is more precise job descriptions to the right people (PMT2).

I253: Different e-mails come from different people. There are also such things happen; for example, an e-mail is received, you ask yourself "Who will take care of it, am I?", "Who will take care of this?" I sometimes get confused about who will respond to which e-mail (CT1).

Lack of some Non-Key Experts (4)

Unfortunately, there was a lack of several non-key experts in the project, and this situation made difficulties in the ID process. Like an SME coordinator, contact person for the outsourcing firms, or team leads for testers.

I254: We did not have someone coordinating us with the content experts (QA2).

I255: As I said, that team should get its own expertise on those topics. Was there that expertise in that team? Or, was that team competent enough to work with those experts and produce that content and was it coordinated that way? I think that problem is still there (QA1).

No Experience on ID Project (14)

This project was new for the majority of the practitioners in terms of scope, subject, and context. So even though people were experienced in distance education and e-learning projects, MOOCs and some ID phases were not used to do.

I256: The difficulties they faced in the instructional design process? The first is that the consortium does not know how to develop online content. The consortium has worked with those international partners before; at least, it appeared so on papers but we could not get support from those international partners (CT6).

I257: As I said, there are some activities in Bilgeİş project that are not available in other projects such as hackathons. Most of the people here ask me what the hackathon is since they have not found it in English dictionary. It does not appear in Tureng. Its actions are different as it is an ICT project (APS3).

Too many people to manage (6)

More than 200 people were working in Bilgeİş Project, and the majority of them had a job or mission directly or indirectly related to the ID process. So this big number could create complexity and difficulties in terms of management and organization. Sometimes, as juniors, seniors, team leaders, key and non-key experts, different firms' presenters, etc. many people should understand the same thing, work sync and together, then do the different part of work packages to be a complete product.

I258: As I said, there is another person who writes the content, there is another person who controls the content, after the feedback there is someone else who is a member of a team called quality assurance team. So as these steps increase, of course, the management of the project starts to be more difficult. Otherwise, you do this: you have 10 fixed staff and the project constantly rotates between these 10 fixed figures. However, it is not like that here. We are 6 people only in the OCU part. There are at least 5 more people in the quality assurance section. Moreover, 100 lessons mean 100 different content experts. If we say that Microcontroller 1, 2, and 3 were written by the same person, it makes 60 people at most. So when you normally have a team of 10 people, you, perhaps, end in a team of 100 people (CT3).

6 of the participants claimed that the crowded teams made works more difficult and in one case, the participant thought that the communication and orientation were also a problematic issue.

I259: That is to say, at the very beginning of every project, things do not suddenly start flowing fluently. There is an adaptation process. But if we make it parallel, then things may go better and useful. Yet, what happened here is that the system constantly changed. We got used to something but someone else came. We did something but we explained ourselves to someone else (QAT2).

Lack of guidance or orientation (15)

Due to several organizational problems, there was a lack of guidance or orientation for firms and people in the Bilgeİş Project. The trial and error method was like to be chosen strategy and this had negatively affected the practitioners and the process.

I260: The project proceeded with such a method: “First, let them do it, and later, we can take care of them” (SME2).

I261: There is a serious need for orientation of people involved, who would be involved later, and who were previously involved (QAT3).

Outsourcing makes ID process complex (10)

Outsourcing was generally preferred as a rapid solution in order to handle time management problems and to use different production technologies in the ID process.

I262: Who will work? The firm A will work. Will the firm A do it itself? No, then the firm A will outsource, and the firm B will work. So you will wait much longer (QAT1).

Process owners have had the disadvantages of having different companies and this has been repeated throughout the whole project as a major problem. In similar projects, it has been emphasised that this should be prioritised in process configuration (Final Report).

In 10 people accounts of the events surrounding, outsourcing created difficulties rather than producing rapid solutions.

I263: In our project, for example, 78 courses belong to E-Learning Company. My biggest challenge with everyone there is that I said that if we had in these 22 courses to other companies, please let the E-Learning Company manage it. Otherwise, I said it would make my business difficult and take my time a lot because I have to work as project manager for each one and I was already executing Bilgeİş. However, my suggestion turned down. The courses were not given to the management of the E-Learning Company. Seven manager works on these 22 courses. If we do not have a properly functioning system, delegating and maintaining that work slows down the job and pulls it back. What I am trying to say is that we divided the work into pieces, and then we managed to reach a certain point and suggested a model to save the project. We divided it into companies, the sub-parts were divided again. Can you imagine the weight and how we try to manage the things fragmented in pieces? (PMT2).

Theme 4. Limitations Emerging from the Nature of the Project

The fourth theme was one of the static negative factors during the ID process. When asked the experiences to the participants if they state only negative and unchangeable, unmanageable factors due to the project structure, then these kinds of factors were evaluated under the *Limitations Emerging from the Nature of the Project* theme.

I264: This project also has its own dynamics and you cannot change those dynamics so you need to take actions accordingly. This may have been the point where it negatively affected (QAT1).

Under the current theme, eight codes emerged from the analysis: *1. E Learning sector capacity in Turkey, 2. Type of project, 3. Too general technical documents of the project, 4. No sustainability plan, 5. Lack of a project consultant and 6. Limited incentive, 7. The high pressure of being the control mechanism and 8. The responsibility of University Prestige.*

E-Learning sector capacity in Turkey (12)

After ToR writing, the applicants' prepared Offer documents. However, there was a limited application for this kind of MOOC project in Turkey since E-Learning sector capacity in Turkey was underdeveloped and limited to only a few companies. So, related to this topic, one interviewee argued that why time extensions occurred in course production respectively.

I265: There is another reason for the prolongation of the time allocated for course production in the project plan. The size of the e-learning sector in this country is known and the companies working on it are also known. Let me tell you that if we design MOOC from the very beginning, if we get into this business again, and if we write ToR from the beginning; believe me, we will not still be able to eliminate some problems we identified and experienced. This has various social and economic reasons behind it. There are some reasons arising from the sector's own internal dynamics and so on. So, you know, maybe we will even have new problems (QAT1).

Type of project (12)

Generally, the EU IPA projects have two types: *fee-based* and *global*. These contract types are basically related to project management strategies. In PRAG Glossary document (2012), they were identified as follows:

Fee-based contract: A contract under which the services are provided on the basis of fixed fee rates for each day worked by experts

Global price contract: A contract under which the services are performed for an all-inclusive fixed price.

In that manner, the explanations of APS member clarified the difference between fee-based and global projects. Besides, participants claimed why the Bilgeş project type had limitations related to its nature.

I266: It might have been more appropriate to design such projects in a different way; the projects that I want to have a little more at hand. Not so open-ended because it is not clear who does what here. Let us say a student at the school prepares content. We do not know; it is as if something similar was going on here with experts. For instance, if it was a fee-based, it could have turned into something else. However, I think that it seems more like global because the content preparation was quite extensive(APS3).

I267: Of course, it is something that influences. We leave more freedom to the other side (globally). At the Fee-based one, we put pressure on [project management] as if we ourselves owned the ropes a little more (APS3).

I: Therefore, even the quality of the work that can be done by the people who will work depends on the company, does not it?

APS3: Precisely, because you will be in a position not to say why you did it with it after you provide the printout.

Since Bilgeş project was a global project, CT had also limitations in terms of getting involved in project management issues.

I268: I mean money reaches at us from previous projects and it is saved in our budget here; and we spend it to make some purchases, etc. However, there was no budget given to us here, that is, the university received no budget. We did not make the expenses. This was a project that worked in a completely different way in terms of finance, management, and team construction. It is also different from Tubitak and other EU projects. You apply the university and do everything yourself. Yet, we saw that everything was different in IPAs. We had inexperience in this respect. We had no idea exactly how and what to do (CT2).

Too general technical documents of the project (27)

One of the most popular problems emerging from the nature of the project was too general technical documents. For instance, the nature of ToR writing for EU IPA project is different from the many project documents. The ToR should be not precise and clear in order not to hinder the applicants' creative solutions. Therefore, in 2013, the beneficiary, CT, had to prepare a too general document by the guidance of ToR writing consultant. However, this unspecific and unprecise ToR and relatively the Offer created several limitations during the project implementation.

I269: Those are the document defined by EU procedures for funded projects which are sometimes created following some previous examples. They are rich in text and media; however, sometimes don't provide the core. In my opinion, the ToR should have explained better the CT's demands and expectations in terms of the portal and complexity of the courses' design. It would enable for the project to go more smoothly (PMT1).

Some interviewees also explained their awareness for the undetailed processes and documents of the project and they tried to eliminate the problems by negotiating.

I270: Planning the process in a more detailed manner. First of all, it was necessary to plan before writing the ToR, because it was something that gave us a headache later. We wrote it in more detailed. For example, we wrote it step by step – let it be like this or that. Yet, the friend who gave us ToR advice said that we should not write that much detailed because it should be more general. He said that it should not limit the creativity of those who will apply. We thought it was reasonable but it turned out to be wrong. Maybe, we should have done it much more detailed. Even the details we put in were few. If we made them in more detail and elaborated on what we expected, it seems that we would be less troubled in the process. We should have received what we demanded by making concessions from the other side but it was brought to a point where we had to make some concessions. It might not be a point we want so much but it is not a bad point either. At least, it was brought to an acceptable level, even if it was with the fight; or, we should rather call it negotiation. So, as I said, the thing that affects the process the most is that the things we wanted were not detailed enough (CT2).

The following document parts resembled the PMT' opinions related to the current code.

The prospect of a clarified work package at the beginning of the project is once again understood in this project (Final Report).

During the pre-project preparation period, the terms of reference (ToR) was prepared by the beneficiary in a way that leaves an open door for innovative and creative proposals. However, the experiences gained have shown that the offers have been prepared with reference to the exact ToR. The beneficiaries should clearly state what they demand in all details while preparing their ToR (Lessons Learned Document).

No sustainability plan (11)

Another problem arising from the fiction of the project was that the project plan does not contain a sustainability plan. Due to the EU regulations, it was not possible to add to sustainability items to the ToR.

I271: In terms of EU regulations, the sustainability-related item cannot be included in. I do not know which strategy could have been employed but I would try to think something for that (CT2).

I272: In my opinion, the project lacks maintenance. In the projects of software development, maintenance remains at the end. Whether you do it in a spiral or snot, it starts to be maintenance in the middle every time you develop a prototype. After that part of this project is delivered, will there be 3-5 years of support after the project? It is not certain. Now you know, for example, you write a project to the Prime Ministry in terms of companies. Then you send one of your employees to the Prime Ministry for 6 months because when a problem occurs for 6 months, the employee takes care of it, solves it, or comes and goes (CT3).

It was observed that although all monitoring sheets had a section about sustainability, there was no effective plan. Some felt that this big limitation was related to the budget, while others considered that the project nature. The following documents include reasons for PMT for this situation and how the sustainability problems were unforgotten in the process.

Just as the project is completed, there is no resource left for sustainability. There is no budget allocated in the institution for sustainability when the project is completed due to the budget items of the state institutions. In the project budget, there should be a budget that will ensure that the project can be sustained with its own resources for a while (Lessons Learned Document).

Sustainability of the Operation was a matter of concern to all parties which is regularly discussed at all management meetings, especially at the first months of the implementation. During the correspondence with the stakeholders throughout the project, this issue was underlined, and possible solutions were discussed. However, having attained great successes regarding the main outputs of the project has alleviated this anxiety (Final Report).

Lack of a project consultant (1)

Only one respondent indicated that there was a lack of project consultant, though the popularity of the topic in the whole process. Considering the project with such a large scale and dynamics, it was obvious that people needed counselling on many project issues.

I273: Therefore, it was not possible for us to get consultancy or support from someone. While writing ToR, we got it; they dictated the things about administrative processes. Dissemination should be done like this; introduce that like this. We got support for them but we could not get any for the core part of the project. We ourselves tried to create it. Is it necessary to get something more detailed such as a training while getting a greater support for the work we will do and while, at the same time, receiving support from a managerial point of view? Of course, it is necessary at every stage of the project, not just for the ToR stage. It is necessary to think like the fish in an aquarium in every project. We, the people involved in the project, are like the fishes in the aquarium. If there is dirt in the water, you cannot detect it. That is why, someone from the outside should support you at the beginning of this project, while the ToR is being written, starting, or compiling. Someone, who has an outer perspective, should attend you and critically examine what is happening, and what you are doing. This is one of the things that should be in any big project. You know there are also consultants in those other projects. If you have a good counselor, he comes and peruses at the details for 2 hours and makes some suggestions. At that moment, an idea comes into your head. Therefore, it is necessary to involve a qualified consultant into the project, someone who knows the subject well (CT2).

Limited incentive (8)

Motivation is a complex construct which is also working with a dynamic system. Therefore, limited incentive mechanism of the project was a big motivation problem for several people in the project. Especially, because CT has no financial gain and has lots of responsibility during the process, the project organization was not able to work to maintain their motivation.

I274: The group inside the project was not supported financially. This was again something that had not been in other projects before. As a Beneficiary, that there is no payment for this is a factor decreasing the motivation. At least, that was not the case for the group inside that much, but if there were such a thing, it would be nice if it had a plus. It could have been better (CT2).

In EU IPA projects, there was a limited incentive for CT due to the rules related Beneficiary so their performance might negatively be affected. Different team members clarified this limitation by their viewpoints.

I275: Universities usually get something from the projects they make in anyway. Employed professors get a fee or they receive something in return. This was a different process for the beneficiaries because the beneficiaries in EU projects do not have the opportunity to get any money. In contrast to all of these, CT approached very professionally (APS1).

I276: Yes, it is very difficult to do work unmotivated. Well, this is the profession of the people; we make our living from it. You have a separate job and occupation, and you also have to take care of it. I think it is very demotivating. For example, in the next project, I do not know, of course, there will be some conflicts. Unfortunately, it is very bad but people who work so hard should be motivated somehow (PMT4).

The high pressure of being the control mechanism (12)

The whole process was stressful for the project practitioners because of everybody care about the quality of the outputs of the project. On the other hand, to approve an output or a work package created a different and high pressure to the control mechanisms of the project. CT, QAT, and APS members declared this high pressure in the project process.

I277: You already have so much work to do. You are involved in such a heavy software project and become a control mechanism. These controls are also very critical; you control such a system, a quite visible not a secret one running at the back. Its burden is loaded on your shoulders; that is also another nuisance (PMT2).

Depending on time and circumstances of the project, sometimes the mechanisms of approval felt compressed.

I278: For example, pressure to approve made me feel uncomfortable (QAT2).

I279: It also creates a huge stress for them. Everyone's names are included so everyone is a little annoying because nobody wants to be tainted by name, which they are right. If I were there, I would undergo the same feeling (SME2).

From the beneficiary's point of view, it is quite a workload to properly control all kinds of documents prepared by the consortium. Even in documents that need to be reviewed by the project coordinators (ministry), the fact that the beneficiary team has both technical and managerial control responsibility made time management difficult. In order for the project to be implemented properly and to manage the process, the project coordinators should conduct preliminary work on the project subject, examine similar projects, and be in closer communication with the beneficiary team. For the approval process of project reports, the biggest responsibility should be on the management team (Lessons Learned Document).

The responsibility of University Prestige (9)

Unlike the stress caused by being a control mechanism, the fact that the beneficiary's name would be mentioned in such a big MOOC project was really challenging for CT

people.

I280: The fact that it is METU is really burden for me because it has a huge responsibility (CT5).

Most of CT members declared that the responsibility of university prestige was a source of anxiety for them and the other teams stated they also observed CT's anxiety during the project lifetime.

I281: Everyone thinks of his or her own problem. I will approve of this work but how can my conscience be clear? The latest thing has not satisfied anyone. I think that mostly everyone has something like this in his/her mind: This could have been done much better with this knowledge and skill. In other words, I think that people thought that METU was involved in this business, that is, it could have been much different. For example, let us say that on our side or the friends on your side are upset when they see that this will not be 40-50 out of 100. During the scenario stage or at other stages, compulsorily working quickly creates a huge stress for them. Everyone's names are included in the project, so everyone feels a little uncomfortable when they are tainted by name. If I were there, I would feel the same (DT2).

4.2.2.12 Theme 5: Complicated Organizational Communication

According to the negative factors emerged from the analysis, the fifth theme of *Organizational Issues* was *Complicated organizational communication*. This theme mainly resembled the organizational communication problems in the ID process and the practitioners' concerns were mainly expressed by the complexity.

I282: Face-to-face communication is important in this respect. For example, one of the important advantages that information technologies give us is that it continues as an asynchrony and then offline. In that respect, we usually meet once a month but communication continued in the electronic environment later on. Therefore, all communication channels must be open. I do not remember the exact specific cases but the problem was actually caused by the communication problem wherever we had problems. This is actually what I remember. It is significant to be together face-to-face because there were the problems related to the communication tone in the asynchrony environment misperceived by the people, or the inability to adjust the tone of one party was at work. Therefore, speaking in the context of the project, I cannot give an exact percentage but a major part of that project is based on communication issues (CT2).

As it can be understood from the quotation above and as in all subjects, communication problems constituted the basis of the problems in this project. So, there were many determining factors such as the tone of communication, channels of communication, the presence of someone to communicate with, and speaking the same language, etc. in the project lifetime.

I283: We both prepared online-teaching and developed content for not only the ministries but also to the private companies. People sometimes think that institutions work differently. It is absolutely not the case. We said that this project required this and we needed to work like this. We will always desire a project representative on the other party, a project manager, or however you call it; we need a contact person. This contact person does not send us e-mails or replies them. He will be involved in the business and he will

work with us one-on-one and elbow-to-elbow. As I said before, communication is very important here (DT3).

When the risk register tables examined, it also detected the different organizational communication problems other than what was said in the interviews.

Risk: Lack of coordination and/or cooperation among relevant actors in the implementation phase of activities under the contract

Reasons: Heavy workload of the relevant Actors, Late invitation of the relevant actors to Operation activities, Insufficient ownership of the key staff within the stakeholders, Inadequate information of the stakeholders' high-level staff regarding the Operation (Risk Register Table).

The mentioned risk in the risk register table contained various complex communication problems inside like not being able to provide information flow, not finding contact person and choosing the wrong communication channel etc.

Under the current theme, eight codes emerged from the analysis: *1. Wrong communication channel for negotiations, 2. Many people to communicate, 3. Email Traffic, 4. Not effective communication in monthly meetings, 5. Wrong Communication, 6. Lack of common language on ID process, and 7. Not being able to communicate.*

Wrong communication channel for negotiations (24)

Generally, misunderstandings arise from lacking face to face communication or unclear decision statements emerged from the meeting minutes and emails were quite a lot of in the process. Although almost every practitioner had awareness about the importance of using right communication channel in organizational communication, sometimes it could not be possible to create healthy communication.

I284: In order to create such a rich content product, the training team, the people who prepared the product, and the people who have knowledge about the product sometimes need to work face-to-face, because there are too many misunderstandings in such things. There has already been a lot (QAT2).

I285: Let us say we communicated with each other through e-mails but it is never like sitting in person face-to-face. Our sentences are perceived more harshly. People make extreme comment more. Resentment occurs more easily. There have been tensions due to miscommunication between the consortium and the teacher at times (CT6).

When the 24 quotations related to the communication channel were examined, it was noted that the interviewees claimed this problem occurred especially at the negotiation times of one issue. Besides, sometimes the different preferences of the people also made the works more complex.

I286: We had to learn the styles of each one separately and communicate with each other separately. For example, one of them e-mails us and sends it. The other one communicates via mobile phone. Someone else asks: "Shall I come and talk to you? You say: Come on, okay, you come too. The other one actually sends it to the quality team while the quality team sends them to us, and so on. Who comes from where or to whom s/he goes. When do we take care of them? They are all mixed up (CT5).

Many people to communicate (11)

As mentioned earlier, there were more than 200 people in Bilgeİş project and also hundreds of stakeholders and outsource company officials. Therefore, it was difficult to manage the communication effectively in the project.

I287: As I said, there are too many stakeholders, so it is not easy for so many people to come together (QAT1).

I288: I always say that 100 courses mean being in contact with 100 different people (CT3).

Communicating with too many people created complexity for all practitioners. Sometimes there were unforgotten or unexpected issues because of this problem in ID phases.

Email Traffic (4)

There were about 8000 emails in Bilgeİş project mail group and this means the members received almost 20 e-mails every day (weekends included).

I289: Our e-mail traffic is too much. For example, sometimes I say that no e-mail has sent today but later I see that 8 emails were received at once. An extensive amount of e-mails is sent. It is hard to control these situation (CT1).

Rather than reading and answering these emails was a serious workload, information in the emails was mixed and forgotten after a while since the following emails and being updated were really hard.

Not effective communication in monthly meetings (8)

There were weekly, monthly and random meetings in the Bilgeİş project. Although the agendas of the meetings were not always related to the course making process or the quality of the MOOCs, important and determining decisions were made at these meetings in terms of the ID process. The effectiveness of the meetings was always a challenging issue among the participants.

I290: I do not think that we can get any benefit from the meetings (CT6).

I291: The meetings were a place for problem solving, rather than being a place where we solve our problems, we were expressing our problems. The problems were accumulating in the mails or the courses were received through e-mails. We were presenting the problems we accumulated there in our meetings. We were saying, look, there are such things. You did not do these things, or you did these things and we did such things. Then that meeting was over. Small decisions were made at the meeting, but the most common decision taken was the meeting decision. We were having meeting decisions at the meetings. When the APS was arrived, certain small decisions were taken, but everything was conducted through the mails. I do not know how to say. Our mails were very didactic but our meetings were in such a sincere atmosphere in general, so to speak (CT4).

As can be seen in the expressions above, not to be able to provide effective communication in monthly meetings caused again very complex information and process.

Wrong Communication (8)

Unfortunately, except for not being able to provide effective communication, it could not be possible to establish communication at all times. Because of stressful discussion situations where no one can fully understand each other, it was noted those wrong communications established by 8 interviewees.

I292: Then each group began to get angry for each other due to the time constraints e.g., you have not prepared good content, your Moodle does not work, no it is right but you could not control well. The project comes to the end with these problems, finally (SWT2).

I293: In a way that he can be useful for us with such recommendations as we can do this in this way or you go into detail that much. He communicated with us in a rather gentlemanly way, without hurting us where we stuck in and talking non-disturbingly, or he talked like this: "you did this but it would be great if you also could pay attention to this." We might have done the similar mistake twice or thrice because it is a very complex environment (DT2).

Lack of common language on ID process (5)

Not being able to use similar terminologies or interpreting terms differently in the instructional design process made communication very complex and difficult to negotiate. Lack of common language on the ID process was identified as one of the complicated organizational communication barriers by 5 interviewees.

I294: In other words, it is not enough for the things to be determined by the standards. Some things need to be set in order to speak in the same direction (QAT3).

I295: Recognizing that revisions that seem simple are technically very challenging, and they cannot be explained from time to time (SWT1).

As it can be seen in the quotations, sometimes the practitioners felt there was the idea that even the desired interaction production difficulty could not be understood in some revision requests. Later, it was revealed that there was a difference in terminology at the source of these thoughts.

Not being able to communicate (8)

Although both the correspondence and spoken language of the project was officially English, Turkish was preferred especially in discussions. Foreign experts in the project sometimes had problems with this issue, sometimes using translators. Also, due to the language barrier, some people could not express his or her opinions in a healthy way while speaking English.

I296: Too much of long unproductive discussion which I could hardly follow and manage because of the language barrier (PMT1).

I297: There is no communication between the units. Yes, we may say that the content is okay, because they can buy it from somewhere. There are no such communications among the content recipient, the storyboard maker, the man who produces the course, and who updates the player. They work in the same place but everybody has something else to deal with (CT4).

So, not being able to communicate was one of the complicating reasons in organizational communication and this affected the ID processes.

4.2.2.13 Theme 6: Perceptions and Expectations

According to the negative factors that emerged from the analysis, the sixth theme of *Organizational Issues* was *Perceptions and Expectations*. The theme emerged from some psychological factors which could have effects on the professional working environment. In other words. According to the analysis, it has been determined that people's perceptions and expectations had a challenging effect on the instructional design process. As in every project or working environment, attitude, assumption, pre-judgment, acceptance, patience or motivation etc. of people towards work have essential effects on the Bilgeİş project.

I298: What is available in each project is time and budget. There is no any specific limitation to this project but there may have been some difficulties in accepting these by all parties (SWT1).

It took a long time to fully comprehend the CT's expectations on the details of the course production process and to have mutual agreement on these expectations. The fact that the relevant parts of ToR were not clear enough and obviously open to interpretation is also one of the main reasons of these long discussions. Therefore, the expectations mentioned here refer to the expectations which are not stated explicitly in ToR; but they had to be assessed critically by considering the time and financial availabilities of the project. For instance, the courses which are called as "high quality courses" are integrated in the course development process which involve higher level expectations and requirements and also requires more time. 12 courses in total decided by the CT to be produced as "high quality courses" while the remaining 88 courses will continue to meet the settled expectations, which required more time and resources on Consultant's side. Because of the unpredictable reasons emerged in course of implementation process; we request the milestone regarding the 100 courses to be uploaded on the Portal should be moved to the 18th month of the Operation, namely June 2017(Request for contract modification 15.03.2017).

Some interviewees argued that some of their perceptions and expectations were related to the project process, while others claimed that they had already perceptions and expectations before the project began.

Bilgiş educational platform is a portal that aims the end-user to put the information received in the course into practice. However, when the specialists of the subject try to produce the course on the target of the CT institution, some lacks of communication and differences in expectations emerge (Course Development Meeting Minutes).

Under the current theme, eight codes emerged from the analysis: *1. Pre-Assumptions and previous experiences, 2. Different priorities, 3. Self-censorship, 4. Different Expectations and 5. Unclear and unrealistic expectations.*

Pre-Assumptions and previous experiences (16)

There were 16 negative comments about the functioning of the project, the way the works were carried out, the way other teams do their work and care, etc. in the interviews. Issues such as the previous works of companies/firms known in the private sector, the image of the beneficiary institution, etc. caused negative assumptions of people and this issue actually affected the objectivity of the project process in every sense.

I299: Because of their private sector experience, they thought that they would handle this job quicker and easier. Because the consumer does not understand that job, they always want a training about customer satisfaction. He perhaps gives the curriculum. Just turn this into e-learning course. E-Learning company did not predict this process because the customer and his own employees are obliged to take this course, as well as thousands or hundreds of people have to take lessons and complete it somehow (APS1).

I300: By acting solely on academic knowledge, experiences on functioning mechanism in practice may have been disregarded (SWT1).

Besides, since previous experiences of the teams made an increase or decrease in the other teams' expectations, it was always hard to detect exactly how things work in other teams.

I301: They tried to do whatever they were thinking up until now. Therefore, their previous experiences have of course affected a lot. In fact, theirs affected more than ours because they shaped the process more since they did the actual production. They also tried to adapt us to them. So, they became successful in pulling the expectations back, to be frank. We have lots of points where we give up (CT5).

Different priorities (13)

It can be seen as “normal” to have different expectations while doing a mutual business, and however, if there are considerable differences between the priorities, then the business process can be challenged. For instance, one of the controversial issues was the review process among the teams. While CT advocated continuing the review process only until there were no errors in the lesson, the other teams wanted to speed up this process as much as possible due to time anxiety. CT emphasized that the quality of the lessons was a priority, although each team performed its job of doing it on time.

Removing some steps of review (e.g. storyboard review) would make the process faster. However, it is still not possible (Interim Report).

I302: While CT is a little more interested in the quality of the work, the other side is interested in finishing the job. They say that “let us do this and send it” but on the other side CT is the one who will approve the lesson. It is clearly written in the contract. As long as it is within the boundaries of the contract, he says okay, of course. Within the boundaries of the contract, they have to do as long as reasonable things are requested. However, as I said, they are profit-oriented companies; this is not a grant project after all. I get some technical assistance from them and they provide me with products. While I am interested in getting the job done right, they are interested in doing his job. This is the style (APS3).

... said that these specifications could be interpreted differently according to who is reading it, and as E-Learning Company, they are focused on producing from the time, budget and source perspective (Content Development Meeting Minutes).

As can be understood from the quotations, different priorities of the teams or team members created new negative assumptions and also this affected their viewpoints negatively. To solve the teams' problems, some crucial decisions came into the stage in the course production planning workshop. However, based on the observations these kinds of decisions also created new viewpoints.

The results of the workshop were discussed and the stakeholders talked about their problems regarding the time. It was put forward that taking the time constraint into consideration, there should not be any revisions

any more that will change the flow in the production process after the storyboard or that will require returning to the subject-matter expert (17.08.2017 Course Production Planning Workshop).

Self-censorship (5)

After long discussions about the course quality and the requests for revisions in the course production process were not met, CT members stated that they felt more hopeless. For this reason, they realized that they were preventing themselves while commenting on the course documents. So, after all, they started not writing revisions because revision requests were not met. They considered this situation as “learned helplessness” or “self-censorship”.

I303: Yes, after a while, our and the other party’s workload have increased. We lost some time, and then we started to fall behind the standards we set at the beginning. I mean, we started saying that if it is not okay, what we can do anymore. Our requests were different at first but they were not met. You say once, twice, or thrice but you say that leave as it was if it does not happen. After a while, it has turned into something like self-censor. Therefore, we started not to write any comments about the things that we said they would not do it or this would not be accomplished anyway while examining at courses or any other things in the storyboard. We started not to disclose anything so we turned it into a kind of self-censorship (CT4).

Different Expectations (17)

As in any kind of project or work, practitioners’ expectations related to the quality, workload, responsibility, or job roles -as expected- had influenced their works, thinking style and also motivation.

I304: In my opinion, the biggest issue for this stage was that different sides had different expectations and pre-assumptions, and the business model which was laying behind was not supporting the real expectations (PMT1).

I305: The reason for the delay was the struggle to find the common expectations and to reach an agreement. Looking at your comments, it is seen that your expectation is very high. While you expect 10 units, the company produces 2 units (APS1).

Also, to clarify different expectations of the teams the following excerpt could be examined.

Introduction: Workshop Moderator asked for a declaration of each participant’s expectations with just one statement at the end of the workshop.

QA1: Being at the same spot in terms of expectations.

PM3: Having decisions that will speed up the process while remaining loyal to ToR.

SWT1: Looking at the same point and speeding up the process.

SWT5: Having made the decisions to deliver 100 courses in April.

ELT Presenter: To able to complete the project successfully

IT expert: Finding the middle ground.

CT4: To achieve a minimum quality standard.

CT5: Reaching an agreement and meeting at a common point that is closer to us.

CT2: Making decisions that can complete 100 courses
APS3: Determining a road map and taking facilitative decisions
(17.08.2017 Course Production Planning Workshop).

Unclear and unrealistic expectations (14)

It was observed that all practitioners of Bilgeİş Project had some complaints about the unrealistic or unclear requests which were expected from the other teams. These requests were the results of the practitioners' presumptions and expectations. However, except for the problem of different expectations of teams and general dissatisfaction, all the teams believed many of the expectations of other teams did not reflect the reality.

I306: If the CT expectations were expressed more clearly, it would have been better. It is important to know what the other side could do and what their capacity is. It might have been better if they did something like these (CT7).

I307: You know, it is the worst thing to say that "I do it; I do them all" in software programming. You know, when the statement "We do it all" is put out, that means "We do what we know" or it means "We will say we did it" for the items that cannot be made (QA4).

Besides, as the examples of the unclear and unrealistic expectations about course quality, the following statements from the documents could be more explanatory:

In order for the Operation to record effective and sustainable success, it is up to the Contractor to inform all the parties regarding the Project activities and expectations from them (Final Report).

I308: Some friends particularly said, "let it be a successful one. I do not know; let us first see it. If you prepare something good, we can approve." It cannot proceed this way. You give the samples and say that you should do it like this. I attended a lesson on the subject called cad/cam. I ask whether we can do that. You can help otherwise the job will not complete. Take a step like that but everybody is prone to protect themselves. I am responsible with this and the other issues are within the responsibility of the others (SME2).

4.3 RQ2. What are the suggestions for an effective and efficient ID process of pdMOOCs?

For the second research question, the following table represents a summary of all suggestions for an effective and efficient ID process of pdMOOCs. Similar to the first research question results, qualitative analysis results pointed out the suggestion topics also cover five main phases in ID Process and organizational issues (*A. Analysis, B. Raw content preparation, C. Storyboarding, D. Production, and Initial testing, E. Organizational issues*). In addition to suggestion topics, the findings in this section

included mostly “lessons learned, what worked, if possible what would be changed, and ideas for better implementations of similar projects” topics. So, the following themes in *Table 4.20* emerged from what determines an effective ID process according to whole gathered data, including suggestions.

Since the ID Process basically refers to the whole pdMOOC Creation process in the scope of the Bilgeİş project, all the themes in the different phases of the project process had an impact on the ID process. Generally, the answers to the questions “How should ID Process be more effective?”, “How should pdMOOCs could be more effective and qualified?” and “What would you change, if it was possible to start?” emerged the themes in relation with the phases and codes. In consideration of the suggestions mentioned below, participants stated that it is possible to contribute both to the improvement of the quality of the MOOCs and the efficiency of the ID process.

Table 4.20 *Suggestions from Practitioners*

	Themes	Codes
A. Analysis	1. Orientation Studies Related (37)	1.1. Orientation studies should be done for all practitioners (16) 1.2. A sample pdMOOC should be created (6) 1.3. Standards and demands should be clearly defined (15)
	2. Analysis Studies Related (9)	2.1. All analysis studies should be finalized before other phases (3) 2.2. “What works?” should be meticulously examined (1) 2.3. Practical workshops should be done to identify end-users’ needs, expectations, initial feedbacks (5)
B. Raw Content Preparation	1. Raw Content Related (20)	1.1. The scope of the course contents should be identified (2) 1.2. Complex information should be simplified (5) 1.3. Raw contents should be written in accordance with a storyboard (3) 1.4. Redaction should be done (10)
C. Storyboarding	1. Process Related (7)	1.1. Micro templates and “how to read storyboards” document should be prepared (3) 1.2. Brainstorming should be done to choose and apply the content examples (4)
	2. Instructional Approach Related (20)	2.1. Examples should be directed to solve real-life problems (2) 2.2. Interactive activities should be added (3) 2.3. Various instructional elements should be provided (2) 2.4. Different instructional approaches should be followed due to the content (2) 2.5. Procedural learning principles should be followed (1) 2.6. Adaptive branching strategy should be integrated (2) 2.7. Professional voiceover should be provided (4)

Table 4.20 *Suggestions from Practitioners* (continued)

	Themes	Codes
D. Production and initial testing	1. Portal Related (20)	1.1. The course evaluation system should be provided (2) 1.2. More social interaction should be provided (4) 1.3. Business intelligence applications depending on detailed usage analytics should be provided (6) 1.4. The portal should be more usable and accessible (1) 1.5. Automatic/peer evaluation should be provided for sustainability (7)
	2. Testing and Revising Related (17)	2.1. Reference point should be approved storyboards for testing (8) 2.2. Testers should test the same course in the whole course creation process (2) 2.3. Different tester groups which include independent and experienced experts should be created (7)
E. Organizational Issues	1. Project Management Related (23)	1.1. Team leaders should have full knowledge of Project (7) 1.2. Small teams should be created based on specific role and missions (3) 1.3. An independent project consultant should guide the process (1) 1.4. Project plans should be realistic and clear (6) 1.5. A software development tool should be used (3) 1.6. All the teams should be work synchronously and interconnected (3)
	2. Quality Management Related (36)	2.1. The checklist should be developed for standardization and objectivity (26) 2.2. A superior controller/QA auditor should be in the QA team (2) 2.3. QA Process should progress based on people and document cooperation (12)
	3. Human Resource Management Related (14)	3.1. All experts in the project should be qualified and experienced on their job (6) 3.2. Motivation sources should be provided based on the importance of work packages (2) 3.3. SMEs should be included in all project (11)
	4. Organizational Communication Related	4.1. Good communication should be established between teams and within teams (2) 4.2. Direct communication/f2f Meetings should be used (3) 4.3. Feedbacks should be provided in different ways (2)

A. Analysis

In this phase, the suggestions of the participants were gathered under two themes: 1. *Orientation Studies Related*, and 2. *Analysis Studies Related*. When Table 4.21 was examined, 46 suggestions were presented for the things to be done during the analysis phase.

Table 4.21 *The Suggestions Regarding Analysis Phase*

Themes	Codes
1. Orientation Studies Related (37)	1.1. Orientation studies should be done for all practitioners (16) 1.2. A sample pdMOOC should be created (6) 1.3. Standards and demands should be clearly defined (15)
2. Analysis Studies Related (9)	2.1. All analysis studies should be finalised before design and development phases (3) 2.2. "What works?" should be meticulously examined (1) 2.3. Practical workshops should be done to identify end-users needs, expectations, initial feedbacks (5)

Theme 1: Orientation Studies

Orientation studies were like the backbone of the whole Project. Every team wanted to make sure they were all on the same page with the Project structure. Some question examples for making common understanding regarding this structure were presented in below:

- "How should we work to be both fast and effective?"
- "What are the realistic methods for gathering data from all these SMEs?"
- "Who can provide detailed and objective information about the SMEs?"
- "How will I explain these meeting minutes to my team members?"
- "What kind of end product the others imagine?"
- "What do they mean when they imply *MOOCs should be more interactive*?"

There were also many different questions about permissions, time, quality, communication types, budget, study visits, promotional materials, encouragement ideas and possible problems in the practitioners' mind. Therefore, they preferred to focus on more the Inception phase while presenting their suggestions and reflecting on their experiences.

This theme mainly reflects the orientation studies should be seen as a must for a healthy implementation of the Project. Mostly, the focus was on the necessity of orientation studies of Experts in the interview findings and researcher's notes, but understanding the main framework of the Project and the pdMOOCs was crucial for each person in each different team. "If possible, what would you do for a better ID Process? the question, two quotations of the answers were presented to enlighten this theme below:

I309: We should at least provide the people with a guidebook. Do this while you are vocalizing it or those people there could be suitable for vocalizing. These websites can be applied. I did not pay for the sounds because they had a free trial for a month. So I did not pay any money. I signed up and downloaded the things that I would use (SME1).

I310: I would do it like this: First, I would determine the technical issues from the beginning. I would determine what I mean by the video. Green screen usage, talking cat, where to put hand and arm, sound quality, camera angles etc. I would determine all of them. I would even determine the materials to be used. I would give examples to let them know what they produce will be like. I would be very concise. After all these, I would create the minimum required teams to develop a course. I would organize the meetings that are necessary for those teams to come together. I mean I would choose 100 different modules. Maybe, I would give it to two separate consortiums and make them compete with each other (CT6).

Based on the observations, If Communication Experts does not understand the main idea behind this MOOC Project in the inception phase, then all activities, promotional materials, and seminars etc., may cause misunderstandings and prejudice.

The theme covers three codes about how orientation studies should be done, sample pdMOOC creation and definition of standards: *1. Orientation studies should be done for all practitioners, 2. A sample pdMOOC should be created and 3. Standards and demands should be clearly defined.*

Orientation studies should be done for all practitioners (16)

Most of the participants (n=16) agreed that the orientation studies should be done for everybody in the Project. They pointed out the importance of creating general standards for common understanding based on their experiences.

I311: We took all the screenwriters to the training. It took a week. We did the same for the ones in productions. I mean we did it in our 2000, 3000 videos, so we let them train to speak the same language (SME2).

I312: What we need to do is tell everyone about the project. What I mean by the project is that the courses will be prepared. These courses should be according to the standard we set.

In fact, we had set the standards very generally. The lessons should focus on these topics. Telling everyone such things to anyone (B4).

I313: A collective memory can be created so that nobody can re-experience what we faced in the first section as the problem. What I learned on my raspberry pi can be experienced by someone else on Photoshop. After that, you can call 300 people on a weekend to share their experiences. Believe me, the costs would not be too high. The errors encountered are disclosed and everyone understands each other in that seminar. Then, go and work Part 2. Most of the problems were already solved so you would do much less thanks to it. Or, I do not think that you will have that much problem (P2).

Also, the researcher wrote the criteria set regarding orientation studies by combining the whole meeting minutes and her observations:

- The ideas which demonstrate/prove why the course can be necessary for the target group should be presented.
- The visual usage terms (quality, technical standards, etc.) and copyright issues should be highlighted. It should be emphasised whenever SME need help, he/she can contact with an expert from the implementation team (CT initial meeting minutes).
- Example raw contents and feedbacks should be shared with SMEs to clarify the process (Initial meetings with QAT).
- SMEs should be informed that there is a possibility of requesting revisions on the content (Initial meetings with QAT).
- SME should provide feedback for the revision requests or questions (Initial meetings with QAT).
- SMEs or other experts should be informed related to expectations of the courses' structure.
- Assessment of the learner should also be provided during the teaching of courses, not only at the end of the courses (23.12.2015 1. Weekly Meeting Minutes).

A sample pdMOOC should be created (6)

This code explained the necessity of a demo or trial version of the end product since most of the participants perceived that the lack of a sample pdMOOC caused complexity and time loss. During the project, the researcher observed that sharing some parts of the elements like an approved raw content file, an animation from the scenarios, etc. could be a benefit for all teams.

I314: I think a sample lesson could have been prepared at first. We actually suggested it in the meetings - let a sample lesson be prepared so that we should go over it. All the courses from now on should be prepared similarly. That was actually the most logical thing. Or, you could do it after the first ten courses. We would lose two months but we would not have lost six months or a year (CT4).

As known as, any company/ organization/team does not fully cover all experienced and expert people. Juniors and seniors work cooperatively in the projects. So, this code represents that this kind of orientation study is essential for especially less experienced people with ID and MOOC development.

Researcher Note: “Course examples and approved raw contents should be shared with experts. Possible errors and misunderstandings should be explained in a clear way.”

Moreover, although it was not emphasized in the interviews, one of the essential suggestions in the whole project process was that there should be an orientation course for users on the portal.

The orientation course is essential for learners less experienced with learning online, especially for the first-time online learners. At the beginning of each course, an orientation lecture/video will be helpful for learners to get ready for the course (for ex: <https://www.udemy.com/the-professional-guitar-masterclass/>). The role of this course is to present: learning environment – user interface, online platform functionalities, suggested learning path and the overview of learning activities including an assessment process. A significant contributor to learners dropping out early from an online course is related to the complexity of the learning tasks that confronts a learner engaging with online learning, and the degree to which learner experiences cognitive overload brought about by the multiple learning curves that confront a learner at the start of any course of online study. To prevent learners from dropping out early from an online course, an orientation course can play a significant role. It can be presented in the form of printable text with screenshots, as a video guide or can be designed even as a course itself. In order to give more attention to learners, readiness prior to online learning, orientation model can include surveys. Readiness surveys, computer skills surveys, and other questionnaires might help (Innovative Method).

Standards and demands should be clearly defined (15)

This suggestion referred to all ID process, ToR writing process, and pdMOOC standards since defining the process can have effects on the results. Fifteen of the participants emphasized that orientation studies that are in the inception phase of the project should cover determining criteria, and these criteria should be clearly understood.

I315: It might have been better if certain standards were set up more clearly before the project started (CT7).

I316: To provide all the demands in terms of the quality of the courses before the beginning of the project (PM1).

I317: For example, you give a color scale, saying “Look, if you are going to use blue, you can use these colors together with it”. You know, these are really important things. After that, the title that will come to the top or what needs to be done between the topics is clear. You can say, now you are doing the whole production. What should the level of the sound be? I mean all these technical stuff... We gave an example of that. This should not something to be said: do the same. Instead, you should give everyone a template, it would be very comforting just to say that let it be in this color, let it be two color, or let this scale be yours (D2).

For instance, if the colors, fonts, headings, language, or story examples, etc. can be determined in the analysis phase, everybody can have a mental adaptation to how screens are like. Also, based on the observations, visual design standards should be created. Besides, a part of Monitoring sheet of the Project evaluated this topic as a lesson learned:

Lessons learned: ToR should be written as clear and detailed as possible in order to communicate the expectations of the CT. During ToR preparation, it was thought to provide some room for innovative and creative proposals. However, proposals tend to fulfill what is written in ToR instead of step up (Monitoring Sheet April 2017).

Theme 2: Analysis Studies

The theme Analysis Studies explained the factors which can increase the efficiency of general Analysis phase and overall project activities. Although many need analysis (learner, content context, etc.) studies or best practices analysis studies have done within the scope of the project, as mentioned in negative factors part, the implementation preferences and outcomes of these analysis studies are not sufficient and to be able to transfer some outcomes to the Project implementation was suffering from aggravated circumstances. For instance, the Project team had detailed findings of the suggested certification process of MOOCs but there was no similarity regarding earning a certificate between examined examples and Bilgeİş pdMOOCs. On the other hand, as one of the QA team members suggested, if the analysis phase should have presented more precise and categorized data, then all experts can be quickly mobilized. Therefore, there was a common agreement about the quality of analysis studies and results among the participants.

I318: It would be much more beautiful if the content titles were determined and categorized beforehand, and if it was also revealed to us with whom to work (QA1).

I319: It will be much better to reach agreement on the portal and its features in advance at this step (SWT3).

The theme covers three codes about the timing of analysis studies, the examination of what works and conducting practical workshops: *1. All analysis studies should be finalised before design and development phases, 2. "What works?" should be meticulously examined, and 3. Practical workshops for end-users should be done.*

All analysis studies should be finalised before design and development phases (3)

Some participants (n=3) explained that the analysis studies were spread to the whole Project process and this situation negatively affected the decision-making process. As an example, if the Open University (UK) visit had done before portal development, maybe the teams would prefer to follow a different strategy for SME guiding.

I320: That is why I said that we should have taken the study visits to the beginning. It is most logical to go and see at first, and decide and draw a map according to the things there (AP3).

Except them, several analysis studies can be conducted concurrently but sometimes there should be an algorithm includes the order and combination of the findings which shows privileged results in terms of being a step for the other study. For instance, the following document parts emphasize the analysis studies should have finalized before production.

Organizing the specialized meeting dedicated to the presentation of the content outlines and sample content storyboards. Next Thursday (14th of January) E-Learning Company will share the storyboard scenarios to discuss and decide the final versions. However, CT thinks that it is too early to decide before the Best Practice Analysis and Innovative Methods are done. E-Learning Company mentioned the time was restricted in terms of following the program 08.01.2016 3. Weekly Meeting Minutes).

Everyone agreed that content of the portal should have a simple, user-friendly and updateable structure. In order to finalize the structure decisions, the Best Practice Analysis and Innovative Methods should be completed (08.01.2016 3. Weekly Meeting Minutes).

“What works?” should be meticulously examined (2)

Although this code was not a popular suggestion (n=2) among the participants, it was clear that everybody thought what works in the process, in the pdMOOCs, in organizational activities, in motivational factors, and etc. and this examination can be collimator for every detail in the Project. Previous experiences of other people/firms can guide and help to the decisions of the current Project, so to know what worked before, like in Best Practice Analysis, can be time saving and effective.

I321: There is a website called “What Works” in USA. What works there is that you should say such things to be paid attention to. In this project or dissertation, I wish you could say we had specified, let us say, 7 main articles to be paid attention to in order to be successful in E-content in the tenders which the university or the government prepares (SME2).

I322: The programs, hardware, and the systems to be used should be examined in detail (SB3).

APS proposed as a final to examine an example of the course the most voluntaries attend in an institutional e-learning platform in order to help understand the expectations among the parties more clearly (17.08.2017 Course Production Planning Workshop).

Following note of the researcher represents another form of “what works” strategy is important. Because of the examination of definitions of SME people about what works in educational technology shaped the subject decisions.

Researcher Note: “If the subject is the usage of a software/tool/technology, a comparison brief should be presented regarding why it is selected to learn among the others. In this point, free and user-friendly software/tool/technologies have priority. In addition, the language should be Turkish, if the selected software/tool/technologies have preferences.”

Practical workshops for end-users should be done (5)

To identify end-users needs, expectations, initial feedbacks, some of the participants (n=5) claimed that practical workshops were crucial. These practical workshops can include several pilot studies, discussions, suggestions, etc. for ensuring the team on design and development decisions in the analysis phase.

I323: I would have planned from the beginning of the project workshops, 3-day trainings; in other words, more certificate-oriented trainings about some courses. I think these should definitely be included if the project continues (PM2).

One of the participants also explained that practical workshops with end users can positively affect the end product quality by saying:

I324: The comments are received from the end user. Pilot tests are conducted. Then, the second one is made more beautiful, and another an interim meeting is held (DT2).

B. Raw Content Preparation

In this phase, the suggestions of the participants were gathered under only one theme: Raw content related. When the *Table 4.22* examined, 15 suggestions were presented for the things to be done during the raw content preparation phase.

Table 4.22 *Suggestions About Raw Content Preparation*

Theme	Codes
1.Raw Content Related (20)	1.1. The scope of the course contents should be identified (2) 1.2. Complex information should be simplified (5) 1.3. Raw contents should be written in accordance with a storyboard (3) 1.4. Redaction should be done (10)

Theme 1: Raw Content Related

Although the participants generally interpreted raw content preparation phase as the raw content writing process itself and qualified raw contents, they suggested only the quality of raw contents. The reason maybe some suggestions were referred to all the phases and all the parts of the project already during the interviews. As an example from the popular suggestions related to raw contents was like the following statement:

I325: A language expert should be included in the controlling team and in other teams. This is a very sensitive issue while preparing a very sensitive teaching material (CT1).

Besides, it was obvious that this suggestion refers to both Project management strategy, human resources, budget, instructional quality criteria of QAT and the other teams, etc. Also, the following researcher notes were like directly related to how the raw contents should be written.

The content language should be consistent in all the components. The prescriptions should be readily understood. Learning tasks should be meaningful.

Raw content-related suggestions of participants mainly include scope identification, redaction, simplification and accordance with the storyboard: *1. The scope of the course contents should be identified, 2. Complex information should be simplified, 3. Raw contents should be written in accordance with storyboard format and 4. Redaction should be done.*

The scope of the course contents should be identified (2)

Based on the participants' discourses, determination of the course scope was crucial because sometimes outlines of contents could not be reached whether SME prepared it or not. Although at the beginning of the project, the necessity of examining outlines was clear by everybody, this topic was like skipped later on. Then, the feedbacks were pointing the scope, and SMEs, QA and CT had to reexamine the same content a number of times. One of the SME suggested to prepare outlines and identify the course scope before raw content writing phase by saying:

I326: We can actually prepare a course about a subject which covers lots of pages or we can prepare a course whose topic contains a rather short content. Either the title of the subjects should be asked from the person who prepared the raw content and be proceeded from there, or the team or project management office can determine the titles of the subjects if they are knowledgeable on these topics thanks to their previous experiences, because, after all, a study is conducted by them to determine the courses in order to specify the needs or other things. Yes, we can say that our main topic is this but they should say that the sub-topics should be these or those if they are able to. I think that it is essential to reach an agreement on the topics before the subject-matter expert prepares the raw content (SMET3).

Complex information should be simplified (5)

Suggestions of participants pointed out this code which is related to raw contents should be simple in terms of language, sentence structure, and wordage, etc.

I327: I would definitely put the short major notices into the programme wherever we teach and give seminars because they want such points (PMT2).

I328: You see that this sentence is too long. Nobody can focus on this while listening. Listening, writing, and reading are not alike. It is necessary to underline this. When you are listening to something or when someone is telling you something verbally, it becomes easier to understand if someone expresses it in shorter sentences or pays attention to intonation. While you are reading, you have a chance to return and reread it. Or, you can focus well on the longer sentences reading in silence (DT3).

Also, many project documents have evidenced the necessity of the simplification.

Action for content problems: Providing the content in the form as simple as possible, but keeping all the elements defined in the “Course content specification” and “innovative method for online learning (Third Interim Report).

Outlines of the Courses: Mobile Programming: CT indicated her concern about wording in this part. She said that all examples were referring employees and employers only. However, they did not want to refer only employees and employers, but they wanted to refer everyone. So, style of wording is critical. E-Learning Company stated that they would be careful for this part and not include such wordings (22.01.2016 4th Weekly Progress Meeting Minutes).

Some determined criteria from researcher notes have similar suggestions with practitioners.

- If abbreviations are used, the explanations or declinations should be given in the first usage (Tr and Eng)
- The parts should include similar contents regarding cognitive load.
- The sentences/descriptions should be short and precise.
- Any advertisement should be avoided.

Raw contents should be written in accordance with storyboard format (3)

The accordance mentioned in the code includes the discourses about content writing based on storyboard format. Because, if the SMEs have information about what kind of course format and what kind of scenario format will be used, then their writing styles, examples, and suggestions etc. can be easily adaptable. This suggestion can be an accelerator for both SMEs and designers.

I329: If there is a more standard scenario or a well-formed scenario to make an item as a product for a real need, it can help us surpass many things such as creating the scenario directly during the raw content. In other words, instead of taking the raw content and then moving onto the scenario, this methodology can actually start from the raw content stage. So, while preparing the raw content, you actually create the raw content over the scenario (CT2).

As it can be understood from the following scenario screenshots, especially including dialogues for presenting the problem situations screens (*See Figure 4.7*) and requiring voiceover (*See Figure 4.8*) screens need to be written and controlled by SMEs since every word carries attention for learners.

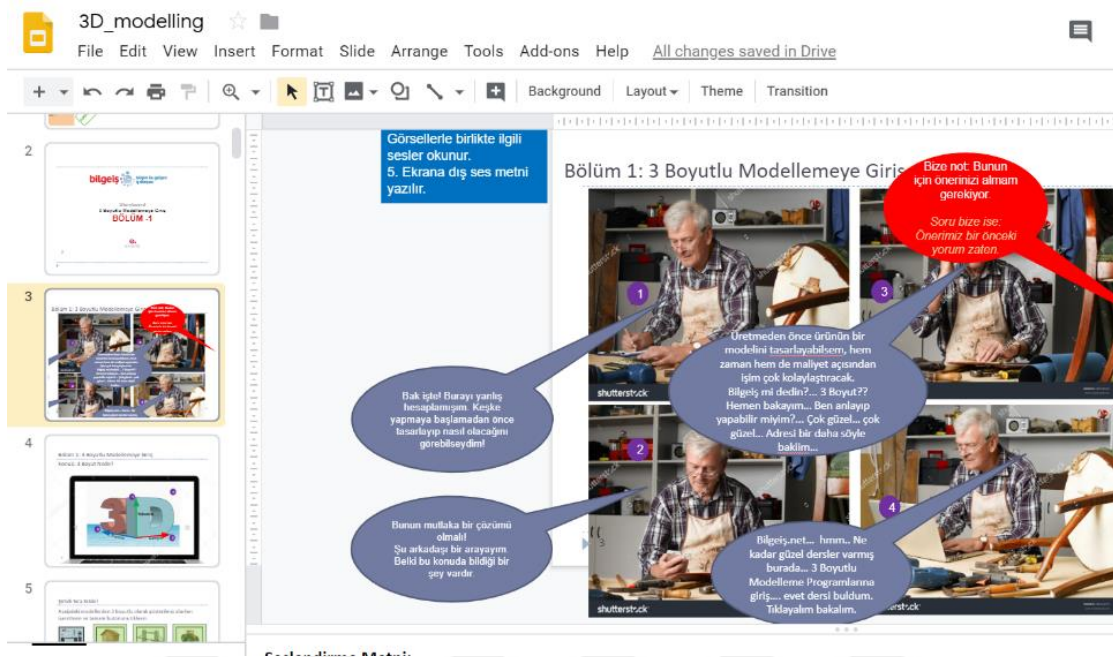


Figure 4.7. Scenario screenshot 1

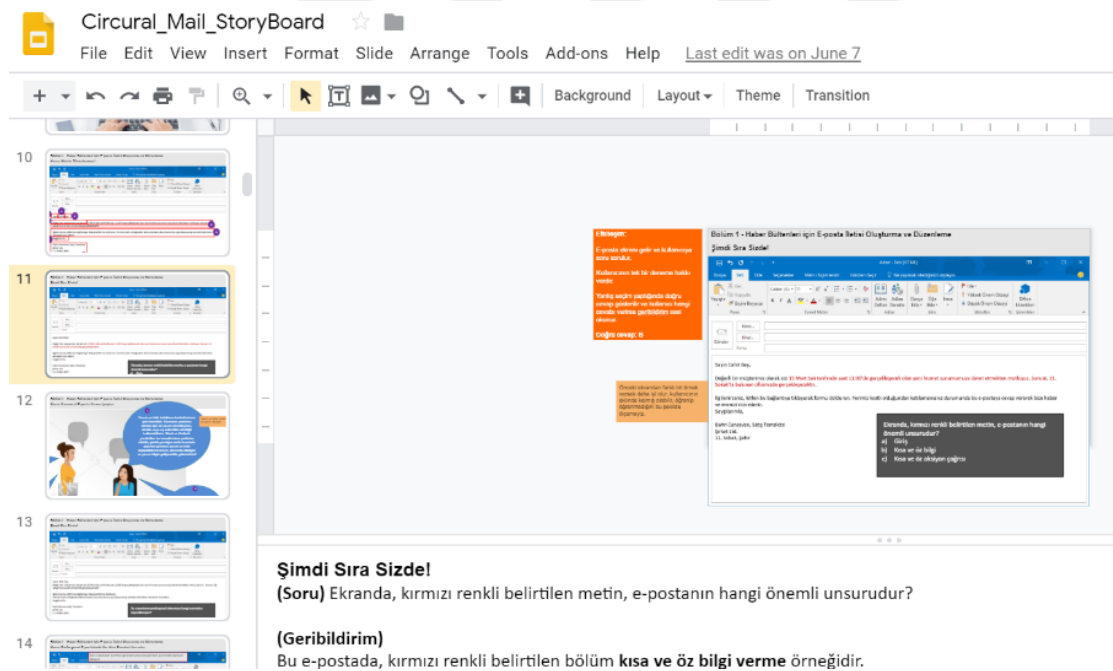


Figure 4.8. Scenario screenshot 2

Following notes of the researcher point out the importance of the accordance between storyboard and raw content. Also, some decisions of CT give details about a healthy implementation of raw content writing.

- The raw content should be divided into a maximum of 3 or 4 parts.
- SME can share her/his ideas about effective instruction or interaction/simulation.
- If SME is foreign, the translations should be done regarding the context of the courses.
- Visuals and examples should be in Turkish.
- If the software/tool/technology has an English interface, the instructions should be provided with Turkish explanations (No need to repeat the Turkish description more than once).
- The raw content should include notes, hints, additional information, and remarks, and so forth.
- All the references should be added to the raw content.
- The content should be presented from the beginning of an application. For instance, the tasks should include “sign-in” section or writing the web address to the browser.
- After the course is completed, what kind of advantages/ instructional outputs will be gained should be clearly stated.

Redaction should be done (5)

Redaction seems to be crucial in such a kind of ID Project, and PMT always declared that there was one expert who charged as a redaction. However, the majority of feedbacks were pointing the typos and ambiguity issues in course documents. Every practitioner declared that the redaction was a big problem during the Project and the recommended that more detailed redaction study should be done on raw contents. One of the practitioners responded to “What would you change, if possible to start again the Project?” question:

I330: First of all, you should have an editor. Do we have an editor as soon as we begin? If not, you should hire an editor just as you begin (B4).

Researcher Notes: “An expert should control the whole raw content regarding spelling and punctuation rules.”

C. Storyboarding Phase

In this phase, the suggestions of the participants were gathered under two themes: 1. Process related and 2. Instructional Approach Related. When the *Table 4.23* examined, 19 suggestions were presented for the things to be done during the storyboarding phase.

Table 4. 23 *Suggestions about Storyboarding*

Themes	Codes
1.Process related (7)	1.1. Micro templates and “how to read storyboards” document should be prepared (3) 1.2. To choose and apply the content examples, brainstorming should be done (4)
2.Instructional Approach Related (12)	2.1. Examples should be directed to solve real-life problems (2) 2.2. Interactive activities should be added (3) 2.3. Various instructional elements should be provided (2) 2.4. Different instructional approaches should be followed due to the content (2) 2.5. Procedural learning principles should be followed (1) 2.6. Adaptive branching strategy should be integrated into the course structure (2)

Theme 1: Process related

This theme includes two codes about storyboard writing process and storyboard control process. Some of the suggestions of participants (n=3) focused on the suggestion of “Micro templates and “how to read storyboards” document should be prepared” while some participants (n=4) storyboarding process should be like brainstorming activity, rather than a reflection of a storyboard writer’s approach. Following researcher notes indicate that other details for storyboard elements and quality.

- It should be controlled whether the ICT tools or services are coming from a reliable or source or not.
- There should be gamification elements (like Internet Security course-determining password activity) in scenarios.
- If there are differences in applications/exercises and so forth, the directions should be given for both Windows and Mac PCs.
- There is no need to introducing with the instructor, but he /she should say some greeting sentences.
- For the screens which are created by the screen captures
- Standard feedback should be provided.
- Practices or exercises should be directly related to workplace needs.
- It should be paid attention to not to use any advertisement, but if some brands are essential to explain and compare in the context, then they will be used.

Process related suggestions of participants mainly include standardization of some documents and brainstorming issues: *1. Micro templates and “how to read storyboards” document should be prepared and 2. Brainstorming should be done.*

Micro templates and “how to read storyboards” document should be prepared (3)

The code basically refers to preparing and controlling the process of storyboards. Because micro templates can be an important helper for many storyboard writers and a guide can be an enabler for storyboard testers to create a common understanding among

the teams. After 10 pdMOOCs preparation, although there was a guide for “how to read storyboards” as seen as in the following image, some of the participants found it useless. On the other hand, when the number of firms or people had increased, storyboard format and framework started to be more complex. So some practitioners might have found this document less detailed and insufficient to understand the scenarios.

I331: I have an idea in my mind in order to accelerate the process. It is not too difficult. It is only necessary to do it planned and programmed properly. It helped me a lot. If I had a chance to go back and start this project at least, I would prepare micro templates for almost every course. In other words, I would prepare a guidance for the scenarios about what should be done and how it should be done (SME2).

Researcher Notes: To make the storyboard process more manageable, some guided practices should be added.

Especially people who later participated in the Project stated they needed to guides for a healthy implementation and testing process.

Brainstorming should be done (4)

Choosing and applying the content examples to the storyboard was a really complex issue since sometimes storyboard writers may not guess which example fits with which interaction types or presentation types. Though instructional designers’ know-how some specific contents can seem to be the hardest work. Therefore, it is possible to say the storyboarding process requires a teamwork and brainstorming method can be an enabler both for storyboard writers and for the quality of storyboard.

I332: We actually did a lot of things by coming together while choosing the samples; we did brainstorming. I underline that when the storyboard is completed by someone, some other people should definitely read that storyboard as well. Is not your goal for very different people to watch that course anyway? (SMP3).

In need analysis studies, some interviews also suggested that courses should be prepared with not just educators but also other teams should be included to the process.

The project should not be left only to the educators. Screenwriters, filmmakers, designers, computer programmers should be included. Online trainings should be prepared together with on-the-job trainers (*KOBİ Employer/OSTİM*)

Theme 2. Instructional Approach

Motivation, feedback, assessment and evaluation can be seen as the major components of instruction and if there is a framework for what kind of instruction will be used, naming or implementing instructional approach gets easier. However, like in Bilgeş Project, if there is a formative process to find, select and test the approach by the help of iterative cycles and a natural case determine what works and what does not work, then to interpret and implement the components can be complex.

The suggestions related to instructional approach were a very popular topic in Bilgeş Project meetings since from the beginning of the project CT declared the significance of pdMOOCs mainly depends on the instructional approach. Another aspect of the instructional approach, it was possible to see the effects of minimalistic instructional theory on the feedbacks and comments. As an example, one of the CT members stated that this issue with the “light content”:

I333: We focused on the notion that “we do not want too much lectures; we want more practice” but there was a heavy lecture sent. Okay, you have to lecture about certain things, but it must be light and less (CT1).

Following criteria set regarding instructional approach gathered from the researcher notes:

- The summary sections should be added at the end of the parts. These summary sections can include important concepts/remarks/aim of the part, information about the process.
- Advantages and disadvantages of the selected program/ software/tool/ technology should be represented.
- It should be avoided from any declarations that have the possibility of misunderstanding or damaging someone’s cultural/ religious/ national /social values.
- Information should be presented from general to the specific and from easy tasks to the difficult ones.
- The whole menu items can be provided as a pdf document in the course.

Instructional approach related suggestions of participants mainly include instructional elements, interactivities, learning strategies, examples, etc issues: *1. Examples should be directed to solve real-life problems, 2. Interactive activities should be added, 3. Various instructional elements should be provided, 4. Different instructional approaches should be followed due to the content, 5. Procedural learning principles should be followed, and 6. Adaptive branching strategy should be integrated to the course structure.*

Examples should be directed to solve real-life problems (3)

Since the target group of the Project needs to solve their workplace problems or to meet their daily needs in the real-life, examples in the course contents should be based on the similar needs and problems in accordance with the Project aim and focus. Following quotations from interviews and documents reflect this suggestion clearly:

I334: As I said, they should be trainings that can solve problems or meet the needs (CT2).

I335: We focused on the notion that “we do not want too much lectures; we want more practice” but there was a heavy lecture sent. Okay, you have to lecture about certain things, but it must be light and less (CT1).

CT had a comment about the examples of scenarios. CT thought that examples of scenarios should not cover a specific profession; examples of scenarios should cover different sectors and targeted to reflect the end-user real life (14.01.2016 Storyboard Meeting).

Also, 4. weekly meeting minutes and researcher notes declared that examples should be directed to solve real-life problems.

Outlines of the Courses: 3D Printing: CT stated that they were expecting a different approach in this course since the topic was slightly different from others. They offered to use live examples in real places. E-Learning Company indicated that they could prepare an introductory video at the beginning of the course by keeping the content same (22.01.2016 4. MMM).

Researcher Notes: The examples and problem situations should be based on daily and needed issues. Examples should be chosen regarding workplace needs. The examples should comply with the adult learners' need, also be remarkable and up to date. Since the aim is to create informal learning environments, concept teaching should not be in focus. Instead, essential concepts should be integrated into context-related examples. Presenting the content should be linked to authentic tasks / examples.

Interactive activities should be added (3)

The practitioners seemed not satisfied with the interactivity in the pdMOOCs and they believed that there should be more interactive activities for more effective courses.

I336: A lesson that is more dynamic, moving and immersed in stories would be more effective (SWT4).

I337: There should be more interaction if we are going to do such a MOOC (CT1).

Various instructional elements should be provided (2)

Even though the current version of the pdMOOCs were sufficient in terms of diversity of instructional elements in the Project lifetime by some practitioners, then they discussed still different instructional elements could be used. One member of PT declared, respectively:

I338: It could be news in the newspaper. He can also give examples from his own world, something that he has lived through. Or, he can even give an example of a game fiction. The following subject can be

explained well with such a game. In fact, it is really important that he gives all the things in a proper way (P3).

Regarding these issues, one of the researcher's notes from the beginning of the project made clear the suggestion was already an approved criterion:

If there are current news/statistics/legal regulations related to the course topic, they should be presented at the beginning of the course to motivate learners.

Different instructional approaches should be followed due to the content (2)

As stated in previous sections, the strategies, methods, scenario ideas, problem types, examples, sequence of the content etc. in pdMOOCs were created by a resultant force including literature support related to workplace learning and adult learning, educated guesses of experts, innovation method, need analysis results, best practice analysis results, end user feedbacks, suggestions of stakeholders, lessons learned from the initial test results. Besides, the suggestion of different instructional approaches for different type of pdMOOCs (social skills based and technical skills based) were discussed. CT emphasis the quality of pdMOOCs should be remain for all 100 pdMOOCs, so there should be still more similarity even though implementation different instructional approach.

PMT3 said that simplifying the processes might be an effective way to solve the problems regarding time loss. She suggested to adapt different quality specifications for different type of courses. CT said that adapting different quality specifications might create differences among the courses in terms of quality (5th MMM).

One CT member and one QAT member explained the necessity of different instructional approaches, respectively:

I339: Microcontroller course should include videos created by him/her or someone else if possible. It may not be possible in stress management because you can only give images there. However, you should definitely support it with video in technical courses if possible. That video should include something as a product in the end so that the user can do the same at home on his own (B3).

I340: I definitely think that the groups should be separated. For instance, soft skills and technical courses should be separate, evaluated separately, and have separate processes. The companies that do it and the experts who do it should be suitable for it. I do not know how many categories this will be but I can divide it into such two basic categories (QA2).

Procedural learning principles should be followed (2)

Although not many people (n=2) stated “procedural learning principles” as a suggestion, everybody declared its necessity and consistency with the case during the process. When

asked them “if possible, what would not you change?”, these principles came out the stage again as a suggestion. So, both the whole project observation notes and discourses of the practitioners created this code. One of the CT members explained the importance of procedural learning, respectively:

I340: When developing MOOC, you need to have to-the-point information. You know it is criticized a lot in edX lectures. The tutor goes and just lectures in the course that he gave at Harvard. This is very boring. The new generation does not focus on anything anymore so we need to do something that is more fun, gives better information, provides more interaction. the learner should learn more by doing rather than sitting and observing (CT1).

Related to this suggestion, following criteria set gathered from researcher notes are:

- Primarily practice parts should be explained step by step.
- The content should be presented cumulatively. So, this does not mean that repeating the same information in different areas; preferably it is vital to follow content by gathering up progressively.
- The content should be arranged from to basic to complex.

Adaptive branching strategy should be integrated to the course structure (2)

Adaptive branching strategy in a course refers to more freedom and personalized learning environments which learners can choose an option for their learning needs; make decisions for their readiness; answer a question to lead the course content based on their answer. Also, if following the student progress is possible, the course can recommend the best options for the learners or help them when they need. So, when the case is self-based learning and MOOCs, the Project team, especially CT always suggested this strategy to create more learner-based pdMOOCs. Unfortunately, only a few pdMOOCs could be designed for this strategy.

I341: We often referred to the branching structure. Systems based on personal preferences. In the process, such systems adapted to follow the progress of the person and giving the feedback accordingly, or following the person in the learning process are going towards a little more technical technological in learning environments (CT2).

D. Production and Initial Testing

In this phase, the suggestions of the participants were gathered under two themes: 1. Portal Development related and 2. Testing and Revising Related. When the Table 24 examined, 46 suggestions were presented for the things to be done during the storyboarding phase.

Table 4. 24 *Suggestions About Production and Initial Testing*

Themes	Codes
1. Production Related (24)	1.1. The course evaluation system should be provided (2) 1.2. More social interaction should be provided (4) 1.3. Business intelligence applications depending on detailed usage analytics should be provided (6) 1.4. The portal should be more usable and accessible (1) 1.5. Automatic/ peer evaluation should be provided for sustainability (7) 1.6. Professional voiceover should be provided (4)
2. Testing and Revising Related (17)	2.1. Reference point should be approved storyboards for testing (8) 2.2. Testers should test the same course in the whole course creation process (2) 2.3. Different tester groups which include independent and experienced experts should be created (7)

Theme 1: Production Related

Under Portal development theme, the issues based on portal related interview results like course evaluation system, social interaction, sustainability, accessibility, usability issues were reported. Under this theme, there are also a lot of suggestions mentioned in documents and meetings but never mentioned in the interviews. For instance, one of the decisions about how helpline should be integrated to the portal is given below:

Helpline: It was discussed about the Helpline. The helpline will be available from 10:00-22:00 and end-users can ask questions, and it will be available to answer the questions within 24 hours. Currently, Helpline is not active. CT stated that the Helpline should be more comprehensive such as when an end-user calls for asking a question, someone should answer it, and there should be also online chat option (11th MMM).

Production related suggestions of participants were: *1. The course evaluation system should be provided, 2. More social interaction should be provided on the portal, 3. Detailed usage analytics should be provided, and the portal should have business intelligence applications, 4. The portal should be more usable and accessible, 5. Automatic/ peer evaluation should be provided for sustainability and 6. Professional voiceover should be provided.*

The course evaluation system should be provided (2)

2 participants agreed for this course evaluation suggestion but this topic was already expected by everybody from the beginning of the Project. After the Project finished, this system has been available on bilgeis.net.

I342: Before taking the course, I look at the bottom to see how many stars are there. People give stars to the course, so such a thing should be implemented here. For example, I am curious about the comments people made about the course. Even if the course is free of charge, I am going to sit and watch it after all. So, I will spend some time. I look at the comments there and tell it can be taken if the majority liked it. However, if most of the people says the course was like a disgrace, a very bad lesson, or they did not understand, and if, let us say, 50 people say this, I will immediately pass that course and look another (SME1).

More social interaction should be provided on the portal (4)

This code meant like sharing experiences module, direct messaging, forum, etc. should be on pdMOOC portal. Due to cultural drawbacks of Turkey, the Project team decided to not to use forum, direct messaging.

E-Learning Company and CT mentioned the importance of monitoring the comments that participants would add under the videos. The visibility of comments by every user was discussed. Their concern was the possibility of facing out of topic comments such as personal, political comments (08.01.2016 3. Weekly Meeting Minutes: "First courses outlines – discussion).

I343: Socialization is what makes MOOCs a MOOC. I do not know how much they socialize in Turkish culture but that environment should be provided for people (CT1).

Detailed usage analytics should be provided, and the portal should have business intelligence applications (6)

This code resembled the necessity of providing detailed usage analytics from the portal in order to create business intelligence applications.

I344: For example, if you take courses on google and complete 23 badges, it gives you a certificate. It is a very small thing but it functions very well even in adult education. We had to set up such simple things at the very beginning. For example, what could be an innovative method in eliminations, in my own Tubitak study, you will definitely put gamification, data mining, and smart reports to your report. You want reporting – we do it using SQL for instance – and if we say innovative, then it should be a business intelligence module (PMT 2).

Another related suggestion was placed in Bilgeİş Online tutor document which including QAT and online tutors' suggestions:

“I completed X course and which course should I take now?” If such suggestions are expected, other courses under the same category on the portal can be suggested (Ex: Pre-Accounting in Excel-> Macros in Excel).

The portal should be more usable and accessible (1)

Just one participant recommends a more usable and accessible portal framework for pdMOOCs but in fact initial test results have revealed problematic issues. One of CT members stated:

I345: There should be the things that will make the learner involve in that process more. Such applications as mobile apps should be integrated into her life, something that she can use everywhere without having any problem (CT2).

Automatic/ peer evaluation should be provided for sustainability (7)

There are online tutors on Bilgeİş pdMOOCs who evaluate the assignments and write answers to learners' questions via e mail. In the beginning of the Project, there were only 3 tutors but as the number of participants increase, 8 tutors have been charged. So, it is hard to manage evaluation in pdMOOCs. One of SMEs and one of SBT identified the sustainability problem and the suggested solution was peer evaluation system:

I346: The system will sabotage itself after a while. The more the system is successful and the more people are involved, the people working here will be drowned and they will not be able to do that job. Or, a department called Bilgeİş will be established and the people will only deal with it (SME1).

I347: There should be a huge team but it is not very logical in terms of sustainability. Therefore, it is necessary to assign the homework assessments to the learners by finding a formula. There are such websites, for instance (SBE1).

Professional voiceover should be provided (4)

As stated in the Negative Factors/Voiceover narration problems section, some technical and dubbing related problems such as mono recording, diction, voice quality

There is a particular audio-related problem with screen recordings:

- Sound quality and its level are very low.
- The vocalist has diction problems.
- Sounds are recorded as “mono” (End User Test Results).

So, as a solution to these problems, the participants, initial test results and researcher notes indicated the voiceover of the pdMOOCs was a really remarkable topic and professional voiceover was recommended for more qualified pdMOOCs. One of the SMEs a one of the PT members explained professionalism like that:

I348: They could hire radio speakers from METU. They could even pay them from the budget of the project. The content provider does not need to pay. You could say I held it myself. I said how much you want and he said that, then I said okay. I sent the text and he read it. There would be formed a pool. If you want a man, here he is or if you want a woman, here she is. Radio METU is such an important resource. Everyone has a good voice, intonation, and diction. You could assign them (DT1).

I349: I mean you have to give a guide to the people at least like this, instructing people about vocalizing, saying “do this or that” or these people should be appropriate (SME1).

Theme 2: Testing and revising related

Based on the combination of Agile and ADDIE methodology, Bilgeleş pdMOOCs were created by iterative testing and revising phase for every part of the ID process. The team had decided new testing and revising process when pdMOOCs have been uploaded to the portal. Also, doing iterative tests at the desired level before end-user tests can decrease the revision time and make it easier. The last procedure was not like these mentioned initial tests, rather many end-user tests were conducted for pdMOOCs on the portal and the participants had also suggestions for all the testing and revising phases. One member of PT declared:

I350: I realized that all teams should work in an integrated way. I think the applicability of standards is actually a matter that needs to be checked within each team (DT3).

I351: If due care is taken, these standards can be applied throughout the process. At this point, you should also be working systematically with the control team, otherwise it will both complicate and extend the process (SWTDT3).

In response to referee’s question, CT said that “We have to fix things from the beginning and agree on what we want, otherwise a job turns too much between the parties and this prolongs the process.” He added that the recent content is more in line with the expectations (Course Production Planning Workshop Minutes).

During the management meetings, it was decided that the revision processes would be limited with one in order to capture the planned processes in the project and speed up the activities (1. Interim Report).

Moreover, although there was a test form for the end user tests in the process, however, the test was mainly included usability related items. Besides the form could be still insufficient if the previous phases were not taken in consideration.

They made a checklist for courses in hidden mode in Moodle, and started looking at that checklist. It is possible but I think it should not be too limited because they are not able see anything else this time. You know, they look at the checklist and tick each item. It is true that they check them but, in the meantime, they overlook other things. Maybe, a normal test can be applied without the checklist and, in fact, it needs to proceed according to the previous document by looking at the scenario while doing the test. At that stage, they already do that thing anyway. It is a document and they implement the test on it. It may be more meaningful to pass the checklist after doing that test. It would be more logical for everyone to follow each course from the raw to the production. Yet, a checklist will definitely help because there are the things

that we overlook. When you look at one course, you miss the next. It does not attract your attention. They all happen. So, they should look at the other items outside of the checklist as well (CT5).

Testing and revising related suggestions were: *1. Reference point should be approved storyboards for testing, 2. Testers should test the same course in the whole course creation process, and 3. Different tester groups which include independent and experienced experts should be created.*

Reference point should be approved storyboards for testing (8)

Due to many comments on the course files and their several versions, sometimes CT and QAT, as testers, got in trouble and there might be complex testing and revising processes. Similar to the assumptions of Project, many participants (n=8) recommended that if CT or QAT test a finished pdMOOC, then the only reference point should be approved storyboard. Otherwise, even minor change requests could have effect on time and motivation. A PT member explained this issue, respectively:

I352: Your reference in tests should be the storyboard. You should not want too much other than what is in the storyboard, but that does not mean that it must not definitely be asked for. However, if the percentage exceeds like 10%, that means there are some places that were blocked and so it needed that much change. Or, something must have gone wrong that I wanted so much change. I wonder if there were things that were skipped in the raw content, or there were uncertainties. Or, I think we should have asked ourselves why we wanted such changes in production because we did not look well while approving the storyboard (P3).

Because the interviewer had also experience as a producer in many similar courses, she/he added their workflow and recommended the last version /approved storyboard should be used as a reference point.

I353: All the procedure must be complete and, after that, the next process should begin. Everything should be delivered to the responsible people in the next process as fully complete. Then it becomes very easy for you to review. Why does it become so easy? Actually, it is because what will come out takes place in the background while you are going through that process. You actually have it in your mind. What do you do? You open the storyboard. Our test team works like that. (DT3).

From the documents, the following two quotations also indicated that approved documents should not be open to revisions any more once approved.

Process Improvement Suggestions: Raw content, scenario and production taken courses should not be changed in Moodle (29.12.2016 PM Presentation).

ELT stated that an approved title or stream should not change during the scenario process; a change is requested in an approved content causes an iteration” (17.08.2017 Course Production Planning Workshop).

Testers should test the same course in the whole course creation process (2)

In order to follow the revision requests more carefully and easily, control the response and the process more consciously based on the experience about the whole course content and the process, two participants suggested that testers should test the same course in the pdMOOC creation process. Testers include both QAT and CT members since they were responsible but for his suggestion might target CT members. One of the PT members stated that the controller explained why this suggestion is important, respectively:

I354: Actually, you are experienced on raw content. We find it significant whether the same team or the person review it (P3).

There were Interim report quotations which reveal the same suggestion:

It is also decided that the same author who conduct the quality control within the CT shall continue reviewing the further steps of the same course (Interim Report 1).

Action Item: Eliminating the second revision process. The resolution of problems or obvious errors that will require new adjustments after the first revision process should not be on papers but by meeting or by phone. It was decided that the revision items that could be done in the first revision must be reported and be reached a consensus on what could not be done. The revisions of this course were decided by the same OCU member under the control of the OCU member who gave revisions to the course (Interim Report 1).

Different tester groups which include independent and experienced experts should be created (7)

Apart from the previous code, participants suggested the test team should also include different independent and experienced testers to be more objective testing process. These different testers can be a colleague from the QAT and CT because the important issue is supporting each other to provide a different perspective. An SME and a CT member noted that the mentioned suggestion can solve testing problems.

I355: There is such a thing as vocational blindness. Although it seems quite obvious to you, some people listen and listen again but they say they have not understood what you meant. You say you mentioned it here but they are not aware of it; they did not care about it and skipped it. However, it is so obvious to you and you mentioned it in one clear sentence. At that moment, you explain with figures and shapes. It comes from here like this and that is how it is. So you have to redesign it. It happens a lot. You work hard on something, and it seems quite obvious to you after a while. You think that it is quite apparent and you do not even need to say it. However, it does not work like that (SME1).

As mentioned in negative factors, long revision process was a big problem for practitioners and at the course production planning workshop, member of a ELT

suggested that there should be just one control process. However, CT denied this suggestion since the courses had many problems and therefore second revision process provide a better look based on the need of more objective control process.

SWT1 mentioned the problems related to the revisions in relation to the courses. For example, for the “Google Drive” course, 42 out of the 49 revisions received in the first stage were implemented, and 53 more revisions were added in the second revision process. To give a second example, 109 items out of the 113 in the first revision process of the “Internet Security” course were revised but he stated that 50 more revisions were asked for in the second revision process. ELT presenter, as a solution to this situation, stated that the second revision process should be removed and the control mechanism should be done in one go. CT representatives replied that the items added in the second revisions might be overlooked (Course Production Planning Workshop).

Rather a second revision process for the phases, maybe the control teams should be extended and diverse and so more objective testing process could be provided as stated by a CT member:

I356: Diversity is good. We can enrich this process with support. Two eyes are better because you can argue while doing it (CT1)

E. Organizational Issues

For the whole project process, the suggestions of the participants were gathered under four themes: *1. Project Management Related, 2. Quality Management Related, 3. Human Resource Management Related and 4. Organizational Communication Related*. When the *Table 4.25* examined, 89 suggestions were presented for the things to be in terms of organizational issues.

Table 4. 25 *Suggestions About Organizational Issues*

Themes	Codes
1. Project Management Related (23)	1.1. Team Leaders should have full knowledge of Project (7) 1.2. Small teams should be created based on specific role and missions (3) 1.3. An independent project consultant should guide the process (1) 1.4. Project plans should be realistic and clear (6) 1.5. A software development tool should be used (3) 1.6. All the teams should be work synchronously and interconnected (3)
2. Quality Management Related (40)	2.1. A checklist should be developed for standardization and objectivity (26) 2.2. A superior controller/QA auditor should be in the QA team (2) 2.3. QA Process should progress based on people and document cooperation (12)
3. Human Resource Management Related (19)	3.1. All experts in the project should be qualified and experienced on their job (6) 3.2. Motivation sources should be provided based on the importance of work packages (2) 3.3. SMEs should be included in all project (11)
4. Organizational Communication Related (7)	4.1 Good communication should be established between teams and within teams (2) 4.2 Direct communication/f2f Meetings should be used (3) Feedbacks should be provided in various ways (2)

Theme 1: Project Management

Project management related suggestions emerged from several various issues including like how should be human resource management strategy, motivation sources of practitioners, clear project plan, team leaders, effective working. While PMT defended the Project plan for such a kind of project should be planned by considering time more, some practitioners the focus should be on systematic working and following the process.

I357: Of course, the work is supposed and desired to be of high-quality, but it could be better if it was more systematic. It should be proceeded step-by-step by determining the deficiencies beforehand (SWT2).
I358: Extend the time. In my opinion, the project should last at least three years (PM1).

Formative evaluation of the process had done iteratively in the Bilgeleş Project, it is possible to say that the following suggestions could reshape the PM process and, thereby, all project process positively in project lifetime.

Project Management related suggestions were: *1. Team Leaders should have full knowledge of Project, 2. Small teams should be created based on spesific role and missions, 3. An independent project consultant should guide the process, 4. Project plans should be realistic and clear, 5. A software development tool should be used and 6. All the teams should be work synchronously and interconnected.*

Team Leaders should have full knowledge of Project (7)

Most of the participants (n=7) declared that team leaders of the teams should have full knowledge of the Project as an enabler since knowledgeable leaders can organize works more easily for themselves and the other members. The reason behind this suggestion might be the encountered problems about different business senses, not to be aware of workload and framework, unrealistic ideas coming from the team leaders.

I359: In my opinion, the person who will be the executive should know well the project that is conducted. Being educated will ease the process for both him or her and the employees. As I mentioned before, if there is a desire for job to proceed easier and complete on time, the trainings will be systematic and someone well-aware of the process will be the team leader so that we can convey our questions (SWT2).

Small teams should be created based on specific role and missions (3)

Related to this suggestion, 3 participants recommended creating more specific groups for better organized and manageable works. One of QAT member explained the problem and solution respectively:

I360: For instance, we could decrease the time that we spent trying to find an expert if we had groups for the content, if we had, say, the packs of five or ten in certain domains, if we knew the names initially and did not determine those names later, and if we worked together to compose those five and ten course packs to focus on them. Thus, in that case, we could specify the supplementary materials of the training. Our scale and members were very wide. This situation took a long time for this process because it was hard to reach an expert. Until you disclose the problem to the expert and getting a response, it takes at least two weeks for each lesson. However, as I mentioned before, if there were focusing groups, we could solve our problems during the first lesson and take the remaining four courses better (QA1).

One member of the SWT also supported that the need of the small groups by pointing direct communication:

I361: The groups can perhaps be separated into fewer members. They can come together more frequently. More attention can be paid to process management (SWT3).

An independent project consultant should guide the process (1)

While just one practitioner suggested that an independent project consultant should guide the process, the majority of the Project people mentioned this issue during the Project lifetime. This Project consultant should be placed from the TOR writing phase and guide the process more objectively.

I362: It is necessary to think like the fish in an aquarium in every project. We, the people involved in the project, are like the fishes in the aquarium. If there is dirt in the water, you cannot detect it. That is why, someone from the outside should support you at the beginning of this project, while the ToR is being written, starting, or compiling. Someone, who has an outer perspective, should attend you and critically examine what is happening, and what you are doing. This is one of the things that should be in any big project. You know there are also consultants in those other projects. If you have a good counselor, he comes and peruses at the details for 2 hours and makes some suggestions. At that moment, an idea comes into your head. Therefore, it is necessary to involve a qualified consultant into the project, someone who knows the subject well (CT2).

Project plans should be realistic and clear (6)

The majority of practitioners from different teams believed that planning in the Project was a problematic issue and so they recommended preparing a clearer and more realistic plan.

I363: It could have been better if the standards were written clearer and more precise in the first place (CT7).

CT representatives stated that a standardization should have been established for the remaining 90 courses in order to speed up the production process, and requested the creation of a task management system in addition. Production Plan will be updated; first of all, the dates of the raw contents will be updated, then the E-Learning Company will update the dates on the production side, and the Production Plan will be revised as all parties agree. The updated Project Plan will be added to Google Drive as an Excel file for everyone to access and shared as a word file when there are new arrangements (17.08.2017 Course Production Planning Workshop).

Revised Project plans, adaptations and changes were trend topic at the meetings and this kind of updates was regarded as “normal” since Bilgeİş was research and development Project based on its framework. However, “Project plans should be realistic and clear” suggestion consisted of the ideas regarding both beginning and whole implementation time of the Project. So, the current suggestion can be also related to following the process, taking actions, and clarifying the process by PMT.

Suggestions for Improving the Process: The partners of the project gather to create the revised project plan which guarantees the project deliverables. Monitoring and following the technical issues that we come across during the process (29.12.2016 PM Presentation).

PMT distributed the progress plan at the meeting as a handout. It was decided that the plan should be updated with another color when changes are made, or deadlines are delayed (8th MMM Progress Plan / Revised Work Plan).

A software development tool should be used (3)

As mentioned in the *Negative Factors /3.3. No collaborative tool usage for ID Process*, there was lack of a software development tool which show the progress, works, due dates, responsibilities, notes, guides, criteria set, communication tools, etc. and this necessity

cause complexity while the teams work. Because Bitrix 24, excel tables, emails and meeting minutes were not sufficient. One of the members of QAT explained respectively:

I364: As I said, I wish we could have used tools for instructional design. You know that PowerPoint documents we use in instructional design came and went many times. We might have had a collaborative tool that could have been used more efficiently (QAT1).

All the teams should be work synchronously and interconnected (3)

This code specifically explains the ideal working style as the cooperation of within teams, between teams and end-users defined by participants. During the ID process, it was obvious that cooperatively working can make the works easier but the main point is working synchronously and interconnected.

I365: Not losing contact with each other. It should not be like this: “Okay, I completed the content, now you come and continue from here.” In fact, if the processes are going to go concurrent with each other, it will be beneficial to have a close communication there. There is something called “extreme programming” under agile methodology in software engineering. This can be applied to software projects, but it can also be applied to this side. For example, while the encoder is coding, there is one another encoder with him. They code together. There is also an end user with them. It may not be possible to do this fully in real life, but if people come together from time to time and communicate with each other as much as possible, a better product can come out without any problems. Otherwise, the raw content expert prepares the content and may think that he is done. However, life does not progress like that. Others may not have understood what you meant there (CT2).

Theme 2. Quality Assurance Related

QAT had various dynamics within the team to provide standardization and ensure all the course’s quality by observing problems and producing solutions; managing revisions of CT; leading the SMEs, SWT, PT, and PMT; determining the processes step by step, etc. From the beginning of the project, there should be a formative evaluation process including first 10pdMOOCS creating like pilot courses and then writing some recommendations and standards to improve the other 90 courses ID process in ToR offer and related documents. However, this assumption could not be responded to due to the process problems. One of PMT explains the mentioned the problem and if only this way could possible qualified courses by mentioning QA process:

I366: If we wait for the product is 100% ready for presenting to the consumer, we lose much time. WhatsApp comes up, for instance. The company sends new updates in every month while setting up the system. When google appeared first, was it perfect. Not at all. Do you know how it was? It was just 20% of what we aimed to do. In fact, that is what we aimed for in first 10 courses. First, we should have given

the first 10 courses and then we could design other 90 courses according to the feedback, but it did not happen (PMT2).

First Interim report also focused that the importance of extending QAT members.

Problem: Numerous revisions. Solution: Revision management process has been improved. Quality control team has been extended (Interim Report 1).

Moreover, the participants prefer to suggest generally more structured, well planned and more organized QA process during the interviews. They focused on more objectivity and how the works should be done. Also, course production planning workshop minutes showed there was a similar suggestion.

The referee asked the participants that if some improvements were made in the “content specification”, would it facilitate the solution of the problems and bring the parties to the same point? QAT1 suggested that the specifications should be determined more clearly and a plan covering the scenario and the production process should be prepared (17.08.2017 Course Production Planning Workshop).

Quality management related suggestions were: *1. Checklists should be developed for standardization and objectivity, 2. A superior controller/QA auditor should be in the QA team, and 3. QA Process should progress based on people and document cooperation.*

Checklists should be developed for standardization and objectivity (26)

The majority of the participants suggested that there should be checklists for both the processes and outputs of the ID processes in order to ensure standardization and objectivity. The code was one of the most stated suggestions during the Project lifetime since subjectivity was a popular topic could cause many problems, as stated in following statements:

I367: Certain criteria should be determined for all courses such details as the content of the course will be like this, such things will be used, or the objectives and achievements are these etc. I wish we wrote at the beginning what we wanted, by determining, perhaps, how its content will be etc., or I mean if only we determined more technical criteria while preparing these lessons (CT7).

I368: For this purpose, we wrote special procedures and created a process called “Moodle candidate.” As long as there is a job and it comes on the “Moodle candidate”, “Moodle candidate” will start its process and look at which work is on the flow, from whom it comes from, or to whom it will be sent. What will be looked at in the “Moodle candidate” during these processes? All of these need to be made into a written procedure one by one at the very beginning of the project (QAT3).

The following quotation emphasized the balance of benefit, time and quality for process improvement:

Complying with quality and change management and looking at benefit/time/quality balance in adding and changing the samples (Raw content-scenario) (29.12.2016 PM Presentation).

The moderator asked the participants if some improvements were made in the “content specification”, would it facilitate the solution of the problems and bring the parties to the same point? QAT1 suggested that the specifications should be determined more clearly and a plan covering the scenario and the production process should be prepared. CT stated that there is an existing plan regarding these, and the processes are followed by CT from here. E-Learning Company presenter stated that when looking at these specifications, everyone can interpret them differently. He continued that as E-Learning Company, they are focused on producing products in terms of time, budget and resources (Course Production Planning Workshop).

A superior controller/QA auditor should be in the QA team (2)

Noting the problem, the teams don’t know the criteria set of QAT exactly, one CT member explained:

I369: Because we do not know what the standards are on both sides. For instance, if it was said from the opposite side that one person would normally look at it constantly when we were looking at three people, it would be better (CT4).

2 of participant stated that a superior controller should be in QAT by explaining internal reliability in QAT:

I370: It makes more sense to have someone who knows everything about [the criterion]. If 4 people were looking at them, one might write “Why did you not write the comment you gave in the other here” (APS3).

QA Process should progress based on people and document cooperation (12)

Even if there were lots of documents and criteria set, there was always a need for meetings and discussions in order to clarify some needs, expectations, decisions and agreements.

The quality of the developed courses was under Operation CT’s expectations. After many meetings and discussions, the quality of course materials are increased. Moreover, in order to meet the deadlines and milestones of the Operation, additional resources are required. The Contractor is mobilizing additional resources for development of courses (Monitoring Sheet April 2017).

So, 12 participants stated that the QA Process should progress based on both people and document since practicability needs organic connections and standards stand up to the documents.

I371: They [QA] tried to establish the link between the content specialist and the screenwriter, and between the scenario and the production but there must still be an organic link and the templates between them (CT2).

I372: The applicability of these standards can be controlled by the chiefs in the teams. In accordance with the decisions taken at the meetings, the applicability of standards is actually conveyed through the chiefs

and are shaped by these teams in the process. The implementation of the standards determined at this point may vary within the scope of the course in the instructional design process (DT3).

I373: The documents stay on the margins; in that, the reality of life remains on the margin. When you set out, you are progressing at that direction, and certain things are determined, some things are left aside in the end even if there is quality control in the process. However, due to its nature, it is not very realistic for a lesson to put a 100-items checklist there and tick them all while progressing (APS1).

CT stated that when there are revisions that are incomprehensible and unclear about what they indicate specifically in order not to revise again, one should be in touch with the reviewer (17.08.2017 Course Production Planning Workshop).

Theme 3: Human Capital Management Related

As most of the researchers indicated, projects similar characteristic features like budget, schedule, HCM and quality standards, etc. (Belout & Gauvreau, 2004). Especially HCM has a strategic role in PMT Belout & Gauvreau, 2004). In this study, HCM related suggestions were *1. All people in the project should be qualified and experienced on their job, 2. Motivation sources should be provided and 3. SMEs should be included in all project.*

All people in the project should be qualified and experienced on their job (6)

It was declared by 6 participants that not only SMEs but also all the experts and practitioners in the project should be qualified and experienced in their jobs. One practitioner who worked for both raw writing, storyboarding, production and work organization of the pdMOOCs, recommended that all people in the project should be qualified and experienced on their job by saying:

I374: I think that the experience of the field expert is of crucial important. It is really necessary to choose people who have gained experience in that field, worked, and had team stories. The expert of every job really means the person who does it by giving his due. When he does it by giving his due, there will be no work left for the other party (SME_SWT_DT3).

The need for experience and competence is obviously important to everyone. Specifically, the reason for the Bilgeİş project was that the participants emphasized this issue extra: Unfortunately, it was seen many practitioners as less inexperienced and less competent in this project because many practitioners have just started work or they did not know much about the MOOC design before or the necessary orientation was not

provided. So, these reasons were due to many different dynamics, such as the nexus of the study's other data.

Motivation sources should be provided (2)

Since motivation is a concept directly related to effective work and dedication, it is very important to motivate everyone in line with their wishes and needs. Although it is not possible to change the framework of the project, sometimes, project management is expected to generate motivational ideas for each people based on the importance of the work package.

I375: While designing ToR, if it is a new learning project's ToR, it is necessary to put details explaining that more resources should be transferred to e-learning in different parts of ToR (APS1).

There were 2 suggestions about this code in the interviews however it was possible to claim that one of the most popular topics was the necessity of motivational sources in the project meetings. Everybody agreed to there should be studies aimed at ensuring internal or external motivation both for project stakeholders, project workers and the target audience.

SMEs should be included in all project (6)

6 participants from different teams indicated SMEs should be included in all phases of the ID process. This refers to an active participant for SMEs since their opinions can have the power of change and revise some decisions or may lead the process with more empathy since they can look from the student perspective.

I376: It is necessary to run a slightly more iterative process with subject matter experts (QAT1).

I377: A content designer must have an opinion at every stage (SME1).

I378: Preparing a sample lesson and showing the lesson to the content experts, and taking that course together. Well, even some comments can be obtained from them over such details as "Is there anything you realized missing?" or "Where do you see it missing?" (CT4).

I379: The person who prepares the raw content should always be in contact with the project management team during the preparation of the raw content. It is important. You need to submit some rules regarding the content to the responsible person. For example, there should not just be pure texts. Now, you know, the learning methods are based on examples anymore, so we support the course with visuals and audio materials (SME_P3).

Regarding these suggestions, similar findings were also gathered from the researcher notes.

- SME should give some additional evaluation ideas and strategies.
- SME should work with Measurement and Evaluation Expert while preparing questions.
- If it is possible, face-to-face meetings should be arranged with SMEs.

Although following suggestion from one of the PM presentations seems a contradiction for “SMEs should be included in the all phases of ID process” suggestion, unfortunately, PMT had suggested avoiding from the SME related revisions because it was difficult for current Project. However, if they had a chance and more time, they stated that working with SMEs are crucial for the healthy implementation of the project.

Theme 4: Communication related

This theme consists of three codes which are emerged from communication-related suggestions for an effective ID process. All the practitioners have declared the importance of communicational factors have huge impacts on their motivation, situational awareness, taking actions, making decisions, reconciliation, and collaboration in the Project lifetime. An example and popular quotation from the interviews and a document part from monitoring sheets have presented in below:

I380: If you look [at this business] in general, you can claim that communication is crucial (CT2).

Also, a monitoring sheet indicates the significance of communication as a lesson learned from the Project since communicational problems affected several elements like time, budget, motivation, dedication, cooperation, etc.

Lessons learnt: The communication among Operation partners, including Operation CT, Contractors, subject matter experts, development team, etc., should not be considered as an activity which can be reduced to save time for other activities, since lack of communication costs more time because it causes repetitive discussions. All experts, especially key experts, mobilized should be qualified and dedicated (Monitoring Sheet April 2017).

Following codes and the explanations include the specific suggestions but at the same time very general and popular issues for all the phases and parts of the Project. Communication related suggestions were: *1. Good communication should be established between teams and within teams, 2. Direct communication/f2f Meetings should be used and 3. Feedbacks should be provided in various ways.*

Good communication should be established between teams and within teams (1)

One of the participants preferred to use “good communication” term to define not focused on negativity, more civilized, and easy to understand during the interview. Also, there was a general tendency for some basic expressions like “thank you, sorry” should be used by the team members.

I381: The group does not have to establish a sincere friendship among each other but they need to build a good communication and more civilized relationships at least. If necessary, they must be of a type that can oppose mutually by saying that “No, this is not like this or it should not be like this.” We experienced such a thing in a case during the project. We had an unpleasant conversation with someone who thinks his job was just to criticize us and who could not communicate with us properly. However, we built civilized relationships with other people although we did not like the comment given by that person (CT2).

By explaining the QA1 review process as a table, he stated that when 45 out of the 60 revisions are implemented properly, they should be thanked in order to facilitate the communication and reconciliation processes between the parties (17.08.2017 Course Production Planning Workshop).

Direct communication/f2f Meetings should be used (3)

Type of communication was always a popular topic on the project meetings since every member tried to find the most effective and healthy way of communication. The members of the different teams (n=3) suggested face to face meetings should be preferred and so direct communication should be provided. Also, the following part of Course Production Planning Workshop focuses on the necessity of oral communication for important revisions and negotiations.

I382: I think there should be a face-to-face meeting while checking the content because this process is a very troublesome process. Let us say you are in the process of a revision, the man could say that “I am a teacher and I say that this is not going to be like this, brother.” Now, I am writing it to you but you may not know what it is, so you go and come. If there is a meeting with the instructor, you can express yourself there better. He may even persuade you if he can. He may claim that it should be like this. Such revision might have reached at me, for instance: I will be better if the student does not see it as animation on the computer. The student should see it live. You set it up and shoot it. It could have been such. I would have then tried to convince you, arguing that we cannot shoot it properly from everywhere so the student cannot see properly etc. (SME1).

The parties agreed on the removal of the secondary revision process during which they explain their problems and receiving suggestions. It is also agreed that they should solve the problems not on paper but by meeting or by phone for obvious errors that will require new regulations after the first revision process. (17.08.2017 Course Production Planning Workshop).

Besides, while monitoring and following the technical issues that is encountered in the processes, coming together was always a benefit for the Project as suggested in following document.

Suggestions for improving the processes: Related parties may come together to form a revised project plan that will ensure the targeted project outputs. Monitoring and following the technical issues that is encountered in the processes (6. MMM).

Feedbacks should be provided in various ways (2)

During the project process, practitioners gave several feedbacks/comments related to various issues such as best practices analysis implementation, choosing SME for a course, storyboard ideas or study visits, etc. The feedbacks related to course production were added as a comment box to the course documents (ppt files for raws and storyboards, checklists, control forms etc.). Sometimes the comments/feedbacks were written in emails, sometimes telephone calls and meetings were preferred. However, it was clear that just one declaration of any request, comment or feedback in these communication channels could not be enough to take an action in such a project. It was hard to deal with communication problems, to keep every detail or info in mind, maintain effective communication that's why one of the CT members suggests the following solution for this problem:

I383: It should not be like: "I explained once, and that is it; I did my duty." It is necessary to explain something over and over again through different channels because people may have different agendas and should not have focused on at that moment. Therefore, one of the basic principles in this organizational communication is redundant communication. If you want to have something done in one place, it is necessary for the other people to accept the innovation or a set of different things. Therefore, it is wrong to say that "we said this but they did not understand." It brings, especially, Rogers's "Diffusion of Innovation" to the front, in which he argues that you bring an innovation to a society/somewhere so people embrace an idea as if it were their own. It is only achieved through reaching out to those people through different channels. Therefore, here too, it is necessary to use all kinds of channels and say something not once, but more than once (CT2).

4.4 Summary of the chapter

This chapter stands for representing the research findings of the study in parallel with the research questions, respectively. For the first research question, which is "What are the factors influencing the ID process of pdMOOCs? How?", *the results* revealed 13 themes and 53 codes for positive factors while there were 18 themes, 100 codes for negative factors. For the second question, which is, "What are the suggestions for an effective and efficient ID process of pdMOOCs?", the results revealed 42 suggestions in 11 categories. Based on the findings of the present study, *Table 26* shows all the factors affecting the pdMOOC ID process and the suggestions for a more effective ID process.

Table 4. 26 *Summary of the All Results*

Phase	Positive Factors	Negative Factors	Suggestions
Analysis	Practical contributions of the analysis studies 1. Conducting Pre-Analysis Study 2. Identifying the majority of needs 3. Adding course topics based on foresight 4. Facilitating for taking stock of the situation 5. Creating a knowledge base	Drawbacks of analysis studies 1. Insufficiency of need analysis survey 2. Planning barriers to identifying the instructional needs 3. Limited contribution to the course design process	Analysis Studies Related 1. All analysis studies should be finalized before other phases (3) 2. “What works?” should be meticulously examined 3. Practical workshops should be done to identify end-users’ needs, expectations, initial feedbacks
	Lessons learned from pilot pdMOOCs 1. Extending QAT 2. Simplifying contents 3. Creating standards 4. Trying to develop prototypes 5. Identifying Instructional method	Pilot pdMOOCs’ problems 1. Troubles emerged from SME related issues 2. No detailed plan and strategy for the ID process 3. Struggling with how MOOCs to be tested 4. Challenge of being on the same page	Orientation Studies Related 1. Orientation studies should be done for all practitioners 2. A sample pdMOOC should be created 3. Standards and demands should be clearly defined
Raw Content Preparation	Pros of raw content development 1. Reliable and up-to-date content 2. Qualified SMEs 3. Desired course context 4. Simplified contents	Insufficient contents 1. Improper translation of contents 2. Problems arising from the nature of the content type 3. Reliability problems 4. The wide scope of the content 5. The sequence of the content 6. Typo and misspelling in the content 7. Lack of extra course materials 8. Measurement and evaluation problems	Raw Content Related 1. The scope of the course contents should be identified 2. Complex information should be simplified 3. Raw contents should be written in accordance with a storyboard 4. Redaction should be done
		SME related problems 1. The difficulty of accessing to SMEs 2. Challenge of preparing online course content 3. Challenge of teaching experience 4. Challenge of know-how 5. Lack of an orientation process	
	Improvements on revisions 1. Double-sided testing 2. Controls of MEE	Raw content revision problems 1. Insufficient quality control 2. Excessive feedback was given by CT 3. No clear quality control standards	Raw content revisions related suggestions 1. The scope of the course contents should be identified 2. Complex information should be simplified 3. Raw contents should be written in accordance with a storyboard 4. Redaction should be done

Table 4. 26 *Summary of the All Results* (continued)

Phase	Positive Factors	Negative Factors	Suggestions
Storyboarding	Enablers of the storyboarding process 1. Quality of raw content 2. Cooperative working with SMEs 3. SWT's know-how on production technology 4. Brainstorming on storyboards	Poor quality of storyboards 1. Incompatibility with raw content 2. Lack of standardized format of storyboard 3. Uncreative Storyboards 4. Improper Audio-Visual Media Usage 5. Not being aware of the software capabilities 6. No support from SME	Storyboard Process Related 1. Micro templates and "how to read storyboards" document should be prepared (3) 2. Brainstorming should be done to choose and apply the content examples
	Desired instructional strategy 1. Instructional needs-oriented 2. Fairly human presence 3. More problems, more solutions 4. More simple, less complicated 5. More procedural, less conceptual 6. More practical, less theoretical 7. More interactivity, more variety 8. More visualization, less wordiness	Difficulties in implementing instructional strategies 1. Few meaningful interactions 2. Unclear contribution of the innovative method 3. More conceptual, less procedural learning 4. More behaviorist, less constructivist 5. Limits of the wide range of the content	Instructional Approach Related 1. Examples should be directed to solve real-life problems 2. Interactive activities should be added 3. Various instructional elements should be provided 4. Different instructional approaches should be followed due to the content 5. Procedural learning principles should be followed 6. Adaptive branching strategy should be integrated 7. Professional voiceover should be provided
	Improvements on revisions 1. Iterative cycles 2. Creating standards on storyboards 3. Double-sided testing 4. The experience and know-how of the testers	Revision problems 1. Lack of standardized format of storyboard 2. Insufficient redaction process 3. The tone of feedback 4. Excessive feedback was given by CT 5. Ignoring revision requests	
Production and Initial Testing	Reformation on the pre-production process 1. To be familiar with the production technology 2. Proper storyboards 3. Involvement of the SMEs 4. Involvement of the SWT	Limitations of pre-production phases 1. Continuous and cumulative errors 2. Intertwined and iterative ID process 3. Lack of an exemplary MOOC to guide 4. Inexperience for MOOC development	Testing and Revising Related 1. Redaction should be done before raw content tests 2. The reference point should be approved storyboards for testing. 3. Testers should test the same course in the whole course creation process. 4. Different tester groups, which include independent and experienced experts, should be created.
	Formative evaluation of the ID process 1. Iterative testing 2. Prioritization of the revision requests 3. The support of CT	Production and initial testing revision problems 1. The too-long testing process 2. Subjective and superficial testing 3. Lack of cooperative study with other teams 4. Lack of a comprehensive standard rubric 5. Unable to do some revision items	Portal Related 1. The course evaluation system should be provided 2. More social interaction should be provided 3. Business intelligence applications depending on detailed usage analytics should be provided 4. The portal should be more usable and accessible 5. Automatic/ peer evaluation should be provided for sustainability

Table 4. 26 *Summary of the All Results* (continued)

Phase	Positive Factors	Negative Factors	Suggestions
Organizational Issues		Cons of end-products 1. Player problems 2. Portal limitations 3. Accessibility problems 4. No social interaction	
		Limitations of production 1. Technical affordance and inabilities 2. Low-quality video production 3. Voiceover narration problems 4. Uncompleted production	
	Improvements in project management 1. Networking skills of PMT 2. Outsourcing and expanding the teams	Shortcomings of project management 1. No good planning 2. Time Limits 3. Budget Limits 4. The extensive scope of the project 5. PMT related issues 6. Lack of a useful PM Tool 7. Lack of standard process and documents	Project Management Related 1. Team Leaders should have full knowledge of Project 2. Small teams should be created based on specific role and missions 3. An independent project consultant should guide the process 4. Project plans should be realistic and clear 5. A software development tool should be used 6. All the teams should be work synchronously and interconnected
	Standardized quality management 1. The existence of the QAT 2. Experience of QAT 3. Presence on every phase of ID Process 4. Preparing rubrics for ID Process 5. The objectivity of QAT	Barriers to quality management 1. Insufficient number of QAT 2. No QA Leader 3. No independent working environment for QAT 4. The extensive workload of QAT	Quality Management Related 1. The checklist should be developed for standardization and objectivity. 2. A superior controller/QA auditor should be in the QA team. 3. QA Process should progress based on people and document cooperation
		Inadequacy of human capital management 1. Unclear or wrong distribution of tasks 2. Lack of some Non-Key Experts 3. No Experience in MOOC Instructional Design Project 4. Many people to manage 5. Lack of orientation of the people/firms in the Project 6. Lack of guidance for the junior members 7. Complications depending on outsourcing	Human Resource Management Related 1. All experts in the project should be qualified and experienced on their job 2. Motivation sources should be provided based on the importance of the work package 3. SMEs should be included in all project
		Limitations emerging from the nature of the project 1. E-Learning sector capacity in Turkey 2. Type of Project 3. Too general technical documents of the project 4. No sustainability plan 5. Lack of a project consultant 6. Limited Incentives for CT 7. The high pressure felt by CT for	

Table 4. 26 *Summary of the All Results* (continued)

Phase	Positive Factors	Negative Factors	Suggestions
		being the control mechanism 8. University Prestige	
	Effective organizational communication 1. Open communication 2. Common language 3. Effective meetings 4. Collaborative working	Complicated organizational communication 1. Wrong communication channels for negotiations 2. Many people to communicate 3. Email Traffic 4. Not effective communication in monthly meetings 5. Wrong communication 6. Lack of common language on the ID process 7. Not being able to communicate	Organizational Communication Related 1. Good communication should be established between teams and within teams 2. Direct communication/f2f Meetings should be used 3. Feedbacks should be provided in various ways
	High motivation 1. Usefulness sense for society 2. Dedication 3. Team leader's approach 4. Prestigious University's project 5. The uniqueness of the project	Perceptions and expectations 1. Pre-Assumptions of teams 2. Previous Experiences of teams 3. Different priorities of teams 4. Self-censorship of CT 5. Different Expectations of teams 6. Unclear Expectations of teams 7. Unrealistic Expectations of teams	

CHAPTER 5

DISCUSSION AND CONCLUSION

This chapter presents the discussion and interpretation of the current study findings by comparing and contrasting them with the related literature. Firstly, examining the details about the ID process of pdMOOCs will help clarify the pdMOOC ID model (Section 5.1). Next, since the study aims to explore the dynamics of pdMOOCs' Instructional Design (ID) process, the positive and negative factors are examined by asking "what, how, why, when, and who" questions in the major findings part (Section 5.2). Also, the suggestions for an effective and efficient ID process of pdMOOCs are discussed in line with the determined codes, categories, and themes in this part. So, all results are combined and summarized in subsections. In these sections, the more general and more discussion-oriented viewpoints led to this section to answer the research questions. In other words, the information given under Section 5.2 includes both the positive and negative factors that affect the pdMOOC ID process and the suggestions of the project practitioners on these issues. Also, the links of the study results with other studies in the literature are presented in these sections. Finally, the limitations (Section 5.3), the implications (Section 5.4), practical suggestions (Section 5.5), recommendations (Section 5.6) of the study are provided in terms of several dimensions.

5.1 ID process of pdMOOCs

Simply, ID is a way that can organize learning actively. ID process includes visible and invisible inputs, outputs, strategies until a need turns into a lesson. So, any type of course design is a process that covers all issues beginning from course planning to providing needed steps to gain learning outcomes (Fink, 2005; Meyer, Gaskill & Vu, 2015). For a better learning experience, instructional models should employ a design that considers

the learners' characteristics, needs, and dispositions towards learning (Meyer, Gaskill & Vu, 2015). Similarly, the MOOC ID process follows a traditional course design model. However, there can be tricky and unique features that need to have more specific design principles for MOOCs (Meyer, Gaskill & Vu, 2015). In the Bilgeİş Project case, the lessons are pdMOOCs, in an e-learning format. Instructional designers in the Bilgeİş project were the team members of the Coordination Team (CT), Quality Assurance Team (QAT), Storyboard Writer Team (SWT), and a part of the people of Production Team (PT). In this context, instructional designers' search for the most effective ID model for pdMOOC design continued from the beginning to the end of the project.

Firstly, considering the pdMOOC design process, the draft of the ID process presentation (See Figure 4.1) was created in the light of known ID models. As stated in the Innovative Method document of the project, the ID Model shown in *Figure 4.1* was recommended based on an ADDIE model in combination with rapid prototyping or agile development. So, the method was not a fixed ADDIE model or Rapid Prototyping. Also, there were different needs and demands for a more detailed process. It is known that there is no single ID model that can adapt to every instructional system perfectly. For instance, none of the existing models point to a rapid and effective production process for MOOC production. Especially for pdMOOC production, a formative ID process was required according to the dynamics of the Bilgeİş project, where decisions could be shaped. For instance, the pilot courses (10 courses) were developed, then "regular courses" came to the stage with the lessons learned from the pilot courses. The codes given under the Analysis Theme (Chapter 4) can be given as examples of some standards and changes determined in this process. Later, high-quality courses were developed especially for the courses for future professions. Similar design principles were used for these courses. However, as production technologies differed, it was possible to teach more interactive and branching courses. Therefore, the need for a specific pdMOOC ID model led the project practitioners to reexamine the existing models, and a unique ID model was created to meet the expectations and needs of the course creation process. So, the project team decided to act with a new approach by examining some of the existing ID models like ADDIE, Dick and Carey (DC) Model, Morrison, Ross, & Kemp (MRK) Model, Rapid prototyping, and AGILE approach (See Table 5.1). In other words, while creating

a specific ID Model for pdMOOCs, several models and lessons learned from the project process contributed to formatting the last and the most effective version of the pdMOOC ID Model.

Table 5.1 *ID Models affecting pdMOOCs ID Model*

Name	Description
ADDIE	The model has five phases: Analysis, Design, Develop, Implement, and Evaluate. Each phase in this model presents flexibility for iterations and changes before moving to the other one. <i>Analysis</i> : Need analysis studies, collecting data about the target group, understanding the needs and expectations of the organization, preparing for the design phase. <i>Design</i> : selecting the instructional strategy, identifying objectives, choosing appropriate media and delivery methods, preparing for the development phase. <i>Development</i> : producing all course materials and utilizing expected and agreed expectations coming from the scenario in the Design phase preparing for the implementation phase. <i>Implementation</i> : Course releasing, learners taking the course, preparing for evaluation phase <i>Evaluation</i> : collecting feedback, comparing the expectations and the results, evaluating the impact, providing learner analytics, preparing for regulations and improvements.
DC Model	This model is also known as the system approach model. Dick and Carey presented a new model in their book <i>The Systematic Design of Instruction</i> in 1970. Dick and Carey Model is not hierarchical or linear. There are ten different parts of this model: 1. to assess needs to identify goals, 2. to conduct instructional analysis, 3. to analyze learners and contexts, 4. to write performance objectives, 5. to develop assessment instruments, 6. to develop an instructional strategy, 7. to develop and select instructional materials, 8. to design and conduct the formative evaluation of instruction, 9. to revise instruction and 10. to design and conduct summative evaluation. Instruction has, therefore, to be seen in its interdependence with the learner and the context and underlies an iterative concept according to the evaluation results.
MRK Model	Morrison, Ross, and Kemp developed this holistic approach model. It has nine procedures: 1. <i>Instructional problems</i> , 2. <i>Learner characteristics</i> , 3. <i>Tasks analysis</i> , 4. <i>Instructional objectives</i> , 5. <i>Content sequencing</i> , 6. <i>Instructional strategies</i> , 7. <i>Designing the message</i> , 8. <i>Development of instruction</i> and 9. <i>Evaluation instruments</i> . Although there are similar phases and elements, Gagné's model focus on outcomes while the MRK Model deals with learners' performance. Differently from the other models, the MRK model focuses on how to manage an instructional design process (Akbulut, 2007, p.3), and its non-linear, circular, and flexible structure allows an instructional designer may begin anywhere in the process and proceed in several order (Gustafson & Branch, 2002). The model also covers the issues related to project management, formative and summative evaluation, revision, and support services, and that is why this model has several similarities with the pdMOOC ID model.
Rapid Prototyping	This model was proposed by Tripp and Bichelmeyer (1990) as a viable system for instructional design projects. It has similar phases with ADDIE, but these phases go on more simultaneously, also the focus is on fast and low-cost development to create a prototype (Joshua, Eytayo, Hammed & Samaila, 2020). According to the Rapid Prototyping model, the main steps in an ID project are: <i>Assess needs & Analyze content</i> , <i>Set objectives</i> , <i>Construct prototype</i> , <i>utilize prototype</i> , <i>install & maintain the system</i> (Tripp & Bichelmeyer, 1990, p.36).
AGILE	The Agile Software Methodology helps to provide concrete proposals for system improvement and contributes to the overall development process. Within this methodology, the main layers are 1. <i>Evaluation of processes and current structure</i> , 2. <i>Suggestions for improvement and process optimization</i> , 3. <i>Design together with the client</i> , 4. <i>Application, construction and implementation</i> , and 5. <i>Evaluation and monitoring</i> . The key principles are: Promoting sustainable development, Giving highest priority to satisfy the needs through early, Being open to change requirements and adjusting the system based on the changes, Reflecting the opinions about how to be more effective, Adjusting the behavior accordingly at regular intervals in the project, Providing continuous communication among the team members and, Ensuring the sustainability.

As Smith and Ragan (1999) proposed in the examined models in *Table 5.1*, generally, ID models mainly include analysis, strategy, and evaluation by focusing the nature of design is not a linear activity. On the other hand, generally, ID models "have traditionally emphasized the step-by-step progression through the instructional design model to lessen the feelings of uncertainty and diffidence while striving towards excellence" (Crawford, 2014, p.418). Most of the studies have been conducted by the ADDIE model (Croxtton

& Chow, 2015; Rafiq et al., 2019) since the model refers to a non-linear process by allowing to getting feedback in each stage (Croxtton & Chow, 2015). On the other hand, it has limitations like inflexibility, and it can be too general (Chen, 2016; Rafiq et al., 2019) for novice instructional designers (Rafiq et al., 2019).

In the latest version of the pdMOOC ID Model, it is possible to detect also the reflections of implementation of Rapid prototyping, MRK, DC, spiral approach, and agile development principles in cycles. Over time, it was possible to elaborate on this model and show how some components came about. Thus, the formative evaluation effect has also been seen in the formation of the model, which shows how to make revisions for the phases. Moreover, examined models have several similarities and differences that can contribute several perspectives to instructional designers. So, the ID Model of pdMOOCs has similarities with the phases and suggested activities of ADDIE and Rapid Prototyping. Differently, as in key principles in the AGILE model, the pdMOOC ID Model focuses on being open to change requirements, adjusting the system based on the changes, reflecting the opinions about how to be more effective, adjusting the behavior accordingly at regular intervals in the project, and providing continuous communication among the team members, etc. DC Model underlies an iterative concept according to the evaluation results, and likely the pdMOOC model consists of several iterations based on initial evaluation results. On the other hand, non-linearity, circularity, and flexibility of the MRK model represent a similar structure. MRK model also covers the issues related to project management, formative and summative evaluation, revision, and support services, and that is why this model has several similarities with the pdMOOC ID model. So, the researcher has been drawn the pdMOOC ID Model and compared it with the other most known ID models by examining the observation notes, course documents, and meeting minutes of the 100 pdMOOC project.

5.2 Major findings

The first research question of the current study is about the factors influencing the ID process of pdMOOCs. The qualitative analysis results revealed two types of factors affecting the ID Process of pdMOOCs: positive and negative. *Also*, the results show that

there are four main phases in the pdMOOC ID Process: 1. *Analysis*, 2. *Raw content preparation*, 3. *Storyboarding*, and 4. *Production and Initial Testing*. Besides, there is a more general phase/part collapsing these four phases during the project process: *E. Organizational Issues* since it reflected all external factors for ID steps like communication, quality management, project management, etc. Besides, the mentioned phases include their feedback and revision cycles.

The results of the first research question revealed 13 themes and 53 codes for positive factors while there were 18 themes, 100 codes for negative factors. In order to present more classified information about the themes, phases, and organizational issues, *Figure 5.1* represents both negative and positive factors with plus and cons signs.

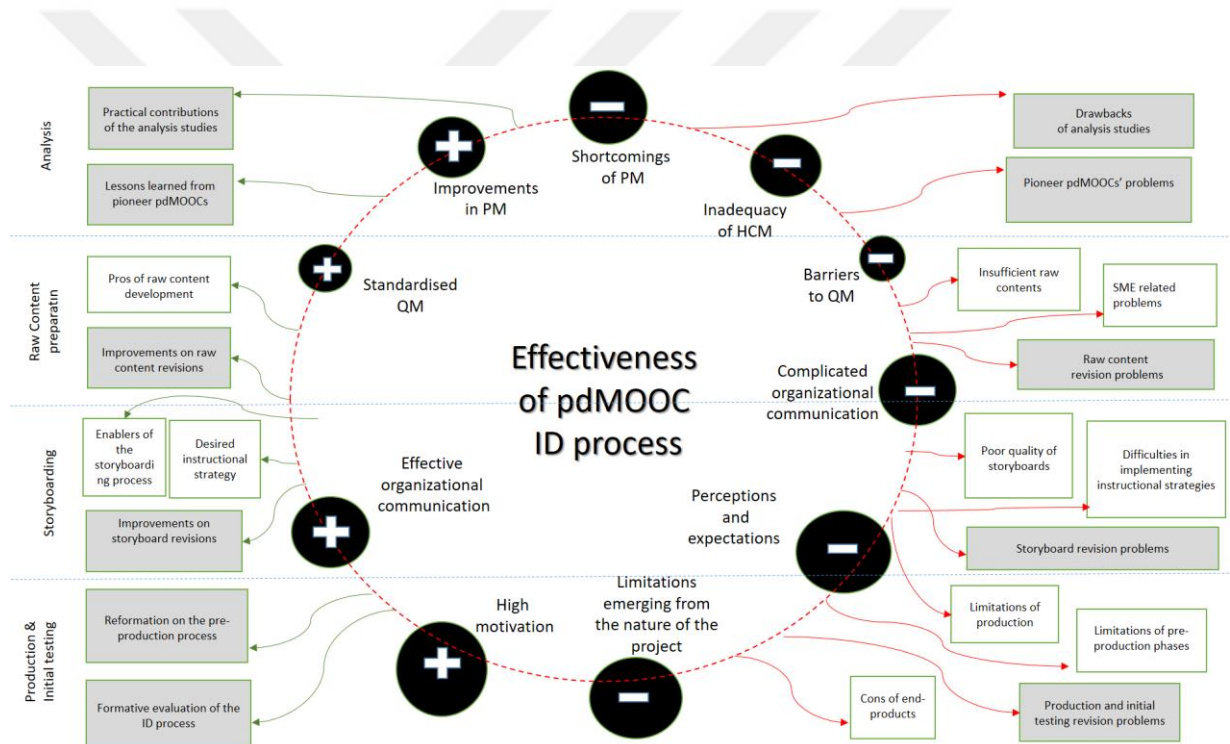


Figure 5.1. The factors affecting the effectiveness of the pdMOOC ID process

In Figure 5.1, the size of the circles shows the frequencies and strong expressions in the codes. The blue and dashed lines represent the mentioned four phases (Analysis, Raw content preparation, Storyboarding, Production, and Initial Testing) that can be intertwined. It is possible to see the themes of these processes by looking from top to

bottom. Hence, the organizational issues are specified to be round and to include all other phases. All negative and positive factors affect the effectiveness of the pdMOOC ID process, as mentioned in *Chapter 4*. The fact that some themes in this figure appear solid and in gray color indicates the themes that directly affect the decisions regarding revisions in the entire ID process. On the other hand, hollow and white themes represent factors that indirectly influence the process. For instance, the codes under “improvements on raw content revisions” positively and directly affect the other phases and course production process. In contrast, the codes under “pros of raw content development” are not valid for whole courses. Instead, there is an indirect effect on the revisions and decisions in the ID process.

For the second research question, the suggestions for an effective and efficient ID process of pdMOOCs were investigated. The qualitative analysis results revealed 42 suggestions (11 categories stated in the previous chapter), which is presented below. It was possible to classify these suggestions according to the phases in like the first research question. Also, several suggestions were given about the organizational issues which concern the whole ID process. Some of the suggestions could be implemented for some courses during the project process. However, it could not be possible to apply most of the suggestions of the practitioners. So, these suggestions can also be regarded as lessons learned by the participants. The following is a list of suggestions provided by the practitioners for an effective pdMOOC ID process:

1. Orientation studies should be done for all practitioners
2. A sample pdMOOC should be created
3. Standards and demands should be clearly defined
4. All analysis studies should be finalized before other phases
5. “What works?” should be meticulously examined
6. Practical workshops should be done to identify end-users’ needs, expectations, initial feedbacks
7. The scope of the course contents should be identified
8. Complex information should be simplified
9. Raw contents should be written in accordance with a storyboard
10. Redaction should be done
11. Micro templates and “how to read storyboards” document should be prepared
12. Brainstorming should be done to choose and apply the content examples
13. Examples should be directed to solve real-life problems
14. Interactive activities should be added
15. Various instructional elements should be provided
16. Different instructional approaches should be followed due to the content
17. Procedural learning principles should be followed

18. Adaptive branching strategy should be integrated
19. Professional voiceover should be provided
20. The course evaluation system should be provided
21. More social interaction should be provided
22. Business intelligence applications depending on detailed usage analytics should be provided
23. The portal should be more usable and accessible
24. Automatic/ peer evaluation should be provided for sustainability
25. Reference point should be approved storyboards for testing
26. Testers should test the same course in the whole course creation process
27. Different tester groups, which include independent and experienced experts, should be created
28. Team leaders should have full knowledge of project
29. Small teams should be created based on specific role and missions
30. An independent project consultant should guide the process
31. Project plans should be realistic and clear
32. A software development tool should be used
33. All the teams should be work synchronously and interconnected
34. The checklist should be developed for standardization and objectivity
35. A superior controller/QA auditor should be in the QA team
36. QA Process should progress based on people and document cooperation
37. All experts in the project should be qualified and experienced on their job
38. Motivation sources should be provided based on the importance of work packages
39. SMEs should be included in all project
40. Good communication should be established between teams and within teams
41. Direct communication/f2f Meetings should be used
42. Feedbacks should be provided in various ways

The study set out to examine the ID dynamics of pdMOOCs. Both first and second research questions stand for this aim. That is why the following combined findings and discussions can help to highlight the results more clearly. Almost all dynamics change depending on the conditions, and changes trigger new dynamics. Moreover, one factor that positively affects the process may absorb many negative factors. Similarly, many psychological and organizational factors can have the power to change all other ID factors constantly. So, the following parts present all dynamics and suggestions under the related themes:

1. Practical contributions and drawbacks of the analysis studies
2. Pilot pdMOOCs' problems and lesson learned from their ID process
3. Pros and cons of the raw content development process of pdMOOCs
4. Enablers and disablers in storyboarding of pdMOOCs
5. Desired instructional strategies in pdMOOCs and the difficulties about implementing the instructional strategy
6. Reformations and limitations on the production/testing process of pdMOOCs
7. Improvements and problems in Project Management

8. The other organizational issues in the pdMOOC ID process

These headings can be seen as an organized summary of all answers given for research questions. In other words, the information given under these headings includes both the positive and negative factors that affect the pdMOOC ID process and the suggestions of the project practitioners on these issues. Also, the links of the study results with other studies in the literature are presented in these sections.

5.2.1. Practical contributions and drawbacks of the analysis studies

The efficiency of the analysis stage is crucial for the ID process. Also, this stage is too broad because it covers the analysis of the MOOC contents, technical features, learners, and online environment (Rafiq et al., 2019). If the analysis studies have practical contributions to the ID process, then it can be possible to get a more straightforward, faster, smoother, and more productive operation. For example, *conducting the pre-analysis study, identifying the majority of needs, adding course topics based on foresight, facilitating for taking stock of the situation, and creating a knowledge base* may help the practitioners. On the other hand, if there are some drawbacks related to the analysis studies, then it may be possible to get a more complicated and challenging process. For instance, the *insufficiency of need analysis surveys, planning barriers to identifying the instructional needs, and limited contribution to the course design* process can decrease the efficiency of analysis studies. In summary, there is a paradox as follows: Results of all the analysis studies contributed to planning the pdMOOC ID process while some of the need analysis studies were not beneficial for the implementation phase (Esfer& Cagiltay, 2019). When we look at the suggestions related to how analysis studies should be done, it can be understood that mainly the timing of the analysis and conducting in-depth analysis have great importance. The findings of this research provide insights for *practical workshops with end-users and "what works?" studies with experienced experts*. Also, the current data highlight the importance of *all analysis studies should be finalized before other phases*. Table 5.2 shows negative and positive factors about analysis studies and also suggestions related to how more effective analysis studies should be conducted.

Table 5.2 *Practical contributions and drawbacks of the analysis studies*

Practical contributions of the analysis studies	Drawbacks of analysis studies	Analysis studies related suggestions
1. Conducting Pre-Analysis Study	1. Insufficiency of need analysis survey	1. All analysis studies should be finalized before other phases
2. Identifying the majority of needs	2. Planning barriers to identifying the instructional needs	2. “What works?” should be meticulously examined
3. Adding course topics based on foresight	3. Limited contribution to the course design process	3. Practical workshops should be done to identify end-users’ needs, expectations, initial feedbacks
4. Facilitating for taking stock of the situation		
5. Creating a knowledge base		

When we examine the literature regarding these results, it is possible to encounter many supporting findings of analysis studies in the literature. For instance, many research studies indicated that some initial steps like creating a team and analyzing the context and legal, ethical, and institutional issues need to be carefully planned at the beginning of the ID Design process of MOOCs (Richter & Krishnamurthi 2014; Wong 2016; Sari, Bonk & Zhu, 2020). Getting support from both the MOOC team practitioners (Sari, Bonk & Zhu, 2020) and the institution (Najafi et al., 2015; Sari, Bonk & Zhu, 2020) are crucial for an effective MOOC design. As Alario-Hoyos et al. (2014) suggested, getting support from the stakeholders and getting advice about course design from several published journals and reports can achieve to handle some ID challenges. Like Sari, Bonk, and Zhu’s (2020) study findings, this study also suggests that MOOC instructors/SMEs should get accustomed to use several design tools and get advice from other MOOC instructors or experts. The collaboration of interdisciplinary teams from different institutions and countries is also a facilitator for MOOC development and delivery (Patru&Balaji, 2016), as done in the 100 pdMOOC creation process. Also, in order to improve MOOC design, detailed planning and organizing, first-hand experiences, and any form of course evaluation should be guided by MOOC designers (Sari, Bonk & Zhu, 2020).

5.2.2. Pilot pdMOOCs' problems and lesson learned from their ID process

To be aware of the lessons learned from the pilot implementations and run them is the second important thing for the ID process. Since the detection of pros and cons in the

first implementations can create a basic guideline for the rest of the project, every problem or advantage helps the process. For instance, *extending QAT, simplifying contents, creating standards, trying to develop prototypes, and identifying the Instructional method* were the enablers in the Bilgeİş case in terms of many dimensions. Nevertheless, unfortunately, some unsolved problems which emerged in the pilot implementation remained their presence until the end of the project. They were like *troubles emerged from SME-related issues, no detailed plan and strategy for the ID process, struggling with how MOOCs to be tested, and the challenge of being on the same page*. When we look at the suggestions related to how orientation should be, it can be seen that providing prototypes and general features of the end products is crucial for the process. Also, demands and some expectations may be declared clearly and discussed in the orientation studies. Overall, this study strengthens the idea that *orientation should be done* for all practitioners in the project. Table 5.3 shows negative and positive factors about pilot pdMOOCs and also suggestions related to how orientation studies should be conducted.

Table 5.3 *Pilot pdMOOCs' problems and lesson learned from their ID process*

Lessons learned from pilot pdMOOCs	Pilot pdMOOCs' problems	Orientation related suggestions
1. Extending QAT	1. Troubles emerged from SME	1. Orientation should be done for
2. Simplifying contents	related issues	all practitioners.
3. Creating standards	2. No detailed plan and strategy for	2. A sample pdMOOC should be
4. Trying to develop prototypes	the ID process	created.
5. Identifying Instructional method	3. Struggling with how MOOCs to be tested	3. Standards and demands should be clearly defined.
	4. Challenge of being on the same page	

Previous studies have demonstrated that the learners' motivations and goals may be quite different (Milligan & Littlejohn, 2017), and it is a big challenge to design a MOOC for participants have different goals and motivations. Moreover, there can be both internal motivational factors such as curiosity and personal interests and external factors such as professional development and taking advantage of university reputations, etc., in MOOC

users (Wu & Chen, 2017). In accordance with the present results, while choosing and implementing the right motivators for the target group, instructional designers should analyze and try different strategies to provide sufficiency and efficiency. For SMEs *or* instructors, orientation (Sari, Bonk & Zhu, 2020) *and* improvement of qualifications are important strategies (Patru & Balaji, 2016). Moreover, carefully planned training of faculty and technical support can enable and clarify many issues from the beginning (Patru & Balaji, 2016). In addition, detailed planning for the MOOC course design is a crucial dynamic for creating an effective learning environment, as Margaryan et al. (2015) stated. As Doo et al.'s study (2020) suggests, seminars and workshops should be done for SMEs in terms of teaching MOOCs effectively since providing guidance and training to SMEs in the ID process is crucial (Richter & Krishnamurthi, 2014).

Another important finding is, as several studies suggested, “the practitioners should write lessons learned” list at the end of the projects (Little, 2010, cited by Pan, 2012). These kinds of documentation are very important in terms of clarifying and sharing learning experiences because they can be useful for future projects or other related projects (Pan, 2012). However, like in the Bilgeİş project, if there is an opportunity for prototyping the process and outputs at the different phases of the project, the practitioners can present several lessons learned document for different cycles during the process. Therefore, the effectiveness of the project and project process may be increased due to the ongoing evaluations. Also, as Siemens (2012) suggested in the nine steps about planning and running MOOCs easily, iteration and improvement are crucial in the ID process of MOOCs.

From a more general perspective, some results are given under *Section 5.2.2. pilot pdMOOCs' problems and lessons learned from their ID process* such as *identifying instructional method or no detailed plan and strategy for the ID process*, further support the five elements for the five elements about the ID of MOOCs suggested by Scagnoli (2012, p.1): Novelty and Leverage for Previous Experience, 2. Input from diversity of sources, 3. Gauge for understanding and further thinking, 4. The motivation for engagement and community learning opportunities, and 5. Planning for Legacy. Because it is very difficult to create a MOOC for all levels and diverse learning community, as

Scagnoli (2012) suggested, these five elements can help an instructor or instructional designer for preparation for the challenges.

5.2.3. Pros and cons of the raw content development process of pdMOOCs

The pros and cons of the raw content development process depend on many dynamics like the structure of the process, SMEs, feedbacks, and revisions or the organizational issues. In general, *reliable and up-to-date content, qualified SMEs, desired course context, and simplified contents* are evaluated positive factors for the process. On the other hand, the practitioners declared that the cons of raw contents more precise. For example, incorrect translation, sequence, and the wide scope of contents needed to serious time for revisions and improvements. Also, there were *reliability, measurement, and evaluation problems* for some courses. These problems create several difficulties for the practitioners and the other experts of the project. *Typo and misspelling in the contents and lack of extra course materials* were the more permanent and unchanged negative factors that were lasting until the testing process of pdMOOCs.

Also, there were lots of SME related problems. SMEs themselves and their orientation of them to the process have essential effects on the raw content quality and the raw content preparation process. Also, timing and the effort for the raw content process can be affected. For the Bilgeleş case, there were several challenges related to the SMEs. For instance, *the difficulty of accessing to SMEs, preparing online course content, teaching experience, know-how, and the orientation process*. Even there were many qualified SMEs in the project, generally, the importance of SME features and capabilities were interrogated. According to the results, SME features were regarded as the essential factors for the raw content preparation and the other phases. However, the practitioners could not define the characteristics of a qualified SME; instead, they prefer to state what they should not be or do.

The revision of raw contents has great importance in terms of the quality of testing, feedback, and revised content. If the testers can provide *double side testing and also Measurement and Evaluation Expert (MEE) testing*, then it can get more reliable results.

However, there was *insufficient quality control, excessive feedback, and no clear quality control standard*, so the efficiency of the process and the contents may be decreased. The suggestions that emerged from this study indicate that some tips about the scope and format of the raw contents and also how the revision phase should be. For instance, redaction should be finalized in the raw content revision phase, and the contents should be written in accordance with the storyboard format. Also, the scope of the pdMOOC should be clearly identified, and simplification of the information can be seen as a must. *Table 5.4* shows negative and positive factors about the raw contents of pdMOOCs and also suggestions related to how raw contents studies should be done.

Table 5.4 *Pros and cons of the raw content development process of pdMOOCs*

Pros of raw content development	Insufficient contents	Raw content related suggestions
1. Reliable and up-to-date content 2. Qualified SMEs 3. Desired course context 4. Simplified contents	1. Improper translation of contents 2. Problems arising from the nature of the content type 3. Reliability problems 4. The wide scope of the content 5. The sequence of the content 6. Typo and misspelling in the content 7. Lack of extra course materials 8. Measurement and evaluation problems SME related problems 1. The difficulty of accessing to SMEs 2. Challenge of preparing online course content 3. Challenge of teaching experience 4. Challenge of know-how 5. Lack of an orientation process Raw content revision problems	1. The scope of the course contents should be identified 2. Complex information should be simplified 3. Raw contents should be written in accordance with a storyboard 4. Redaction should be done
Improvements in raw content revisions 1. Double-sided testing 2. Controls of MEE	1. Insufficient quality control 2. Excessive feedback was given by CT 3. No clear quality control standards	

Several studies focus on the quality of content, rather than on the quality of the instruction (Conole, 2015; Margaryan et al., 2015; Jung et al., 2019). A possible explanation for this might be that the quality of the content is quite decisive for the quality of the whole course. For instance, as this study results revealed, all course content should be achievable and challenging, up-to-date, relevant to learners' needs, and delivered appealingly as several studies suggested (e.g., Drago, Peltier & Sorensen, 2002; Jones & Kelley, 2003; Jung et al., 2019). Also, *MOOCs should also present the*

learning outcomes clearly and again, as all online materials should do (Ubachs et al., 2012), and evaluation methods such as projects, assignments, and exams should be aligned with the learning outcomes (Pelitier et al., 2003; Jung et al., 2019). Moreover, the *results about* Pros and cons of the raw content development process of pdMOOCs seem to be consistent with other research which found that SMEs should identify the teaching philosophy, situational factors, course goals, and what learning outcomes (Fink, 2005; Meyer, Gaskill & Vu, 2015). Similar to Sari, Bonk, and Zhu's (2020) study findings, challenges related to SMEs' time constraints also emerged as a major topic in this study findings since the instructors from different countries have their other teaching or administrative duties. Although the instructors in the mentioned study had to develop their lessons without a team, time constraints can be said to continue since they may need to be involved in the whole process.

5.2.4. Enablers and disablers in storyboarding of pdMOOCs

Although the practitioners clearly defined the enablers of the storyboarding process, they did not specify any negative factors for the storyboarding process itself. Instead, there were identified enablers for the storyboarding process like the *quality of raw content, cooperative working with SMEs, Storyboard Writer Team's (SWT) know-how on production technology, and brainstorming on storyboards.* If a storyboard was regarded as "poor quality" by the practitioners, it meant there were some problems such as *incompatibility with raw content, lack of standardized format of storyboard, uncreative storyboards, improper audio-visual media usage, not being aware of the software capabilities and no support from SMEs.* For the storyboarding phase, two leading suggestions came into the stage. First, *some micro templates and "how to do" documents* should be provided. Second, a *brainstorming strategy* should be followed in the whole process in order to get more reliable and effective results.

When it came to examining the results related to the storyboarding revision process, it could be possible to claim that many of the negative and positive factors were similar to raw content or MOOC revisions. As a positive dynamic of the storyboarding process, there were improvements in revision frameworks, including *iterative cycles and double-*

sided testing. Also, creating some standard base and the testers' features made a more effective storyboard revision process. However, there were still difficulties that created barriers for practitioners and improving course quality. The results showed that *the tone of feedback or excessive feedback* had the opposing sides for an effective revision process. Alternatively, ignoring some revision requests and insufficient redaction process made serious challenges. Lastly, since the outsourcing or the SWT team increased, there occurred different storyboard formats. So, the *lack of a standardized format of storyboards* made trouble for the practitioners. Table 5.5 shows negative and positive factors about the storyboarding process of pdMOOCs and suggestions related to how the storyboarding process should be.

Table 5.5 *Enablers and disablers in storyboarding of pdMOOCs*

Enablers of the storyboarding process	Poor quality of storyboards	Storyboarding Related Suggestions
1. Quality of raw content 2. Cooperative working with SMEs 3. SWT's know-how on production technology 4. Brainstorming on storyboards Improvements on storyboarding revisions 1. Iterative cycles 2. Creating standards on storyboards 3. Double-sided testing 4. The experience and know-how of the testers	1. Incompatibility with raw content 2. Lack of a standardized format of storyboard 3. Uncreative Storyboards 4. Improper Audio-Visual Media Usage 5. Not being aware of the software capabilities 6. No support from SME Storyboarding revision problems 1. Lack of standardized format of storyboard 2. Insufficient redaction process 3. The tone of feedback 4. Excessive feedback was given by CT 5. Ignoring revision requests	1. Micro templates and "how to read storyboards" document should be prepared. 2. Brainstorming should be done to choose and apply the content examples

In the ID process of an e-course, using storyboarding techniques is beneficial in terms of providing interaction between instructional designers and SMEs since they should be in communication (Salim, 2014). As mentioned in the literature review, according to Patru and Balaji's (2016) scenario classification, pdMOOC scenario mode can be regarded "industrial scenario," which refers to a model in which the portal is responsible for development and delivery and academic staff is responsible for design and implementation like in Coursera MOOCs. However, differently, in pdMOOCs, SMEs are not directly responsible for design and implementation; instead, they should be a guide for the whole process. SMEs, SWT, and PT have a critical role in the ID process

(Esfer & Cagiltay, 2018). Instructional designers, QAT, and PT have missions about transforming raw content into a MOOC on the portal. Generally, after analysis and initial phase studies, instructional designers collaborate with the SMEs and examine the course material. This collaboration gives an outside perspective in the raw content or scenario writing process. Similarly, while instructional designers write the storyboards, SMEs, developers, and technical teams help instructional designers to get more clarified, understandable, and feasible courses. Many experts who have several professions in a project can give feedback about the presentation of the content and reflect their opinions if there is online learning or any kind of educational project. Moreover, the storyboarding revision process of pdMOOCs is consistent with Wong (2016) described: “As well, after releasing the storyboards for a course, we conducted a retrospective to discuss what worked well, what did not work well, and find improvements.” (p.3). Moreover, the current results seem to be consistent with other research, which suggests the storyboarding process, which includes a distributed and collaborative environment, should support people's interaction, communication, and the iterative cycles (Salim, 2014). On the other hand, as mentioned in the literature review, ID processes of MOOCs may differentiate based on the types. For instance, xMOOCs have a video scenario writing process before the production phase (Patru and Balaji, 2016), and using basic design principles for online education is suggested (Bates, 2015). However, designing a cMOOC has more complex and iterative design cycles since the learners can add and enrich the courses (Patru and Balaji, 2016) as the pdMOOC ID process covers lots of different feedbacks and revision requests in during and after the storyboarding period.

5.2.5. Desired instructional strategy in pdMOOCs and the difficulties about implementing the instructional strategy

The instructional strategy includes all techniques and methods that can help learners with the aim of meeting their instructional needs. Generally, instructional designers of Bilgeİş pdMOOCs aimed to motivate learners, help them to focus on the subject, organize the information for simplification, and assess their learning process. So, they tried and created some instructional strategies which perceived as more effective. The teams got benefit from several sources like the innovative method, literature, best practices, and

teaching experiences of experts, etc., while they were defining the strategies. In the process, there occurred desired instructional strategies that should be followed by the practitioners. For example, pdMOOCs should be *instructional needs-oriented; more simple, less complicated, more procedural, less conceptual, more practical, less theoretical*. Also, they should have a *fairly human presence, more interactivity, more variety, more visualization, less wordiness, more problems, more solutions*. However, in the project lifetime, there were some difficulties in implementing the desired instructional strategies. Adding a few interactions to the course scenarios was one of the challenges since the instructional designers wanted to see more interactive screens for some courses. Due to several reasons like time limit, budget limit, production technology limit, or the difficulty of implementation of interactions, the practitioners stated they were not satisfied enough. Also, they thought the innovative method's contribution to implementation was not clear. In other words, there were not some practical suggestions for the implementation of desired instructional strategies, and the teams could not guess how they could achieve some goals in the ID process. According to the results, the pdMOOCs were designed with *more procedural, less conceptual learning principles*, and sometimes the approach was *more behaviorist, less constructivist* when compared to the expectations and determined principles at the beginning of the project. Moreover, there was another difficulty with *implementing the same instructional strategies for the wide range of the contents* in Bilgeİş pdMOOCs.

The main suggestions related to the instructional strategy included using *real-life problems, interactive activities, various instructional elements, professional voiceover, and adaptive branching strategy*. Besides, slightly, the instructional strategy can differ due to the content, and *different approaches* can be selected for them, mainly *procedural learning principles* are helpful. Table 5.6 shows negative and positive factors about the instructional strategy of pdMOOCs and also suggestions related to how the instructional approach should be.

Table 5.6 *Desired instructional strategy and the difficulties*

Desired instructional strategy	Difficulties in implementing desired instructional strategies	Instructional approach related suggestions
1. Instructional needs-oriented	1. Few meaningful interactions	1. Examples should be directed to solve real-life problems
2. Fairly human presence	2. Unclear contribution of the innovative method	2. Interactive activities should be added
3. More problems, more solutions	3. More conceptual, less procedural learning	3. Various instructional elements should be provided
4. More simple, less complicated	4. More behaviorist, less constructivist	4. Different instructional approaches should be followed due to the content
5. More procedural, less conceptual	5. Limits of the wide range of the content	5. Procedural learning principles should be followed
6. More practical, less theoretical		6. Adaptive branching strategy should be integrated
7. More interactivity, more variety		7. Professional voiceover should be provided
8. More visualization, less wordiness		

According to the results about pdMOOC pedagogical perspective, minimalistic instructional theory principles developed by Carroll (1990) are of great importance because it presents useful and similar suggestions for the ID of computer-based learning environments. As an example of minimalistic instructional theory, there is a training material for using a word processor, which includes 25 cards in Carroll's book. These 25 cards can be regarded as a minimal form of 94 pages manual, and they provide key ideas, step-by-step guidance, hints as the principles recommended. Therefore, the minimalist design of the training material is more time saving and effective rather than the manual. *pdMOOC contents should include reliable, up to date, simplified and precise information. Examples, schemas, tables, or audio-visuals in the raw contents should be clear, simple, suitable for cultural features, easy to understand.* Carroll (1990) also indicates that Gagne or Merrill's theories may be unsuccessful at activating prior knowledge and getting benefit from the learners' errors and states that "adult learners are not blank slates; they don't have funnels in their heads; they have little patience for being treated as don't knows" (p. 11). Besides, he focuses on that constructivist approach since the roots of minimalism are associated with it. Basically, according to the Minimalistic instructional theory, all learning tasks should be set up realistic, meaningful, and self-sufficient for learners, and it should be allowed to start doing these tasks immediately. Learners should deal with projects that cannot be completed as soon as possible. By constructing activities based on active learning strategies, students' reasoning and improvisation should be supported. There should be an opportunity for error detection

and correction in teaching materials or activities. Moreover, reducing the reading materials or other activities where the student will be passive as much as possible can help to create a more minimalistic learning environment. *Moreover, pdMOOCs offer a less content-centered model, while company-based MOOCs have some fixed reading materials* (Blackmon & Major, 2017).

Furthermore, academic studies carried out by the project team in the project process also support the results of this study. For instance, Esfer and Cagiltay (2018) supported that conceptual learning should be minimized, and procedural learning should be maximized in this kind of learning environments, the focus should be put on informal learning to handle dropout and absenteeism problems; the needed solutions of daily work problems should be presented as the real-life issue, and, progressing with small steps, learner guidance, and encouragement in every stage of the learning. More procedural and informal learning principles lead to the courses. *On the other hand, designing MOOCs to support effective teaching is very difficult* (Wong 2016). *This study's findings have differences with MOOC attraction strategies* (Richter & Krishnamurthi 2014; Wong, 2016) *such as using some tools for language support like translators or automatic translation* (Patru & Balaji, 2016); *creating learning communities* (Bonk et al. 2018). As (Meyer, Gaskill & Vu, 2015) stated, generally MOOC related problems may be related to ID principles and suggest that the use of appropriate MOOC ID principles should be further explored. For instance, difficulty degree of the content, the types of assignments, quality and quantity of feedback, lack of meaningful interactions, or lack of commitment, etc. (Meyer, Gaskill & Vu, 2015) are the issues that express the ID principles and decisions. Furthermore, to find and implement the desired instructional strategy in pdMOOCs, As Egloffstein (2018) stated, it is possible to eliminate some ID strategy related problems via technology-based solutions. For instance, as (Ifenthaler, 2015) suggested learning analytics systems can be used for creating a more self-directed learning environment. Or by examining the learner data, dynamic feedback and adaptive instruction can help increasing the instructional quality significantly.

5.2.6. Reformations and limitations on the production/testing process of pdMOOCs

One of the most critical dynamics of the production and initial testing phase was the pre-production times since it included both positive and negative effects for significant steps of works. The practitioners generally claimed if the pre-production phase was good enough for a pdMOOC, then everything went smoother and faster. However, if there were unclarities and questions robust storyboard approval, then all problems started to enlarge in that stage. Therefore, reformation on the pre-production process was an enabler due to the iterative cycles and determined four principles helped to some courses' design. They were *to be familiar with the production technology, proper storyboards, involvement of the SMEs, and SWT*. If these conditions had met, production and initial test phase went well. Therefore, the whole ID process went well. Otherwise, unfortunately, the following problems ruined the process and the outputs: *Continuous and cumulative errors, intertwined and iterative ID process, lack of an exemplary MOOC to guide, and inexperience for MOOC development*. Specifically, intertwined and iterative ID processes could make more complex the process and works, although this grift and ongoing structure of the ID process increased the quality of outputs. Based on the observations, the stated limitations of pre-production phases (except the third one) were mainly related to the fast or sloppy working of the practitioners.

Also, there were several limitations to the production and cons of end-products. Unfortunately, the test results mainly indicated the negative features of pdMOOCs and the portal as the end products. The practitioners claimed that the cons of the end products decreased their motivation, and trying to solve the problems was very exhausting for them. So, they stated several *players or accessibility problems and portal limitations* as the cons. Besides, even if there were decisions about the social interaction in the project, *lack of social interaction* (forums, messaging, etc.) was still a significant limitation for the quality of the pdMOOC portal.

There were still lots of production problems like *low-quality video production, voiceover narration problems, uncompleted production, and technical affordance and inabilities*. When the results were interpreted combined, there seemed to be only technical problems

in production. Nevertheless, still, the problems included many other dynamics, which could be stated by only PT. Due to the data collection limitation about PT members, the researcher provided researcher notes in the previous chapter (*Chapter 4*). Also, there was a delimitation for the ID process in the production and initial testing phase, which was called the formative evaluation of the ID process. Because this evaluation brought some advantages to the process like *iterative testing, prioritization of the revision requests, and the support of CT for more effective production*. On the other hand, like every revision phase, there were production and initial testing revision problems like *too long testing process, subjective and superficial testing, lack of cooperative study with other teams, lack of a comprehensive standard rubric, and unable to do some revision items*. However, surprisingly, there were no positive comments about the process. This could be explained by the practitioners' stress level when they remembered the candidate MOOC approval process, which had lots of discussion, meetings, negotiation, and unclarity.

When examining the suggestions related to the end-products, it is possible to claim that some features should be added into the portal if the system sustainability is essential. The course evaluation system, more social interaction, business intelligence applications, and automatic/ peer evaluation should be provided. Also, according to practitioners, the portal should be more usable and accessible. On the other hand, when the suggestions coming from how the testing and revising pdMOOCs should be examined, three issues emerged: *Reference point should be approved storyboards for testing, testers should test the same course in the whole course creation process, and independent and experienced experts* should be created for testing. Table 5.7 shows negative, positive factors, and suggestions about the pre-production process, formative evaluation, production, and initial testing process of pdMOOCs.

Table 5.7 *Reformations and limitations on the production/testing process*

Reformation on the pre-production process	Limitations of pre-production phases	Testing and revising related suggestions
1. To be familiar with the production technology 2. Proper storyboards 3. Involvement of the SMEs 4. Involvement of the SWT	1. Continuous and cumulative errors 2. Intertwined and iterative ID process 3. Lack of an exemplary MOOC to guide 4. Inexperience for MOOC development	1. Redaction should be done before raw content tests 2. The reference point should be approved storyboards for testing. 3. Testers should test the same course in the whole course creation process. 4. Different tester groups, which include independent and experienced experts, should be created.
Formative evaluation of the ID process 1. Iterative testing 2. Prioritization of the revision requests 3. The support of CT	Limitations of production 1. Technical affordance and inabilities 2. Low-quality video production 3. Voiceover narration problems 4. Uncompleted production Production and initial testing revision problems 1. The too-long testing process 2. Subjective and superficial testing 3. Lack of cooperative study with other teams 4. Lack of a comprehensive standard rubric 5. Unable to do some revision items Cons of end-products 1. Player problems 2. Portal limitations 3. Accessibility problems 4. No social interaction	Portal related suggestions 1. The course evaluation system should be provided 2. More social interaction should be provided 3. Business intelligence applications depending on detailed usage analytics should be provided 4. The portal should be more usable and accessible 5. Automatic/ peer evaluation should be provided for sustainability

Generally, MOOC ID processes include preparing content, activities, and assessments (Drake et al. 2015), while the pdMOOCs ID process focuses on the initial testing phase. Also, the ID process of MOOCs generally covers similar works such as video, audio, screen recording, mixing, editing, post-processing, etc., and there may be various approaches (Bali, 2014; Drake et al., 2015) based on the MOOCs' structures. While xMOOCs have a video scenario writing process before the production phase, cMOOCs have more complex and iterative design cycles since the learners can add and enrich the courses (Patru and Balaji, 2016). Therefore, the pdMOOC ID process is more like cMOOCs, but they still have important differences, as explained before in the ID model of the pdMOOCs part. Although the ID process of pdMOOCs examined in this study did not include the evaluation stage of end-users, the formative evaluation process allows gaining user feedback and ongoing revisions because the end-user evaluation can provide a broader perspective for the problems met by learners and present suggestions for

improvement (Ziegenfuss, 2016 as cited by Rafiq et al., 2019). *As the like design of any kind of educational/instructional initiative has MOOC design also has iterative cycles (Patru & Balaji, 2016) and pdMOOCs have slightly more complex and intertwined cycles.* Also, the current study's results seem to be consistent with other research, which found that to be able to work in phases facilitates developers or instructional designers to build effective and organized learning experiences, considering theories and ID principles (Meyer, Gaskill & Vu, 2015).

5.2.7. Improvements and problems on organizational issues

Basically, since the main stages of a project life cycle are starting, organizing and preparing, carrying out the work, and closing, each phase includes the tasks related to initiation, plan, execution, monitorization, and control, etc. (PMI, 2008). From the aspect of the organizational issues, various factors had the power of changing every ID phase's rotation, structure, efficiency, and effectiveness of activities and outputs, or decisions, etc. For instance, the size of the project has a significant effect on complexity (Qureshi & Kang, 2015). Therefore, Bilgeİş can be regarded as a big size project in terms of the number of personnel, the number of activities, task contents, outputs, etc. the project process has its own complexity. Even this ID project can be regarded as complex adaptive systems since the complex term refers to the inter-relationships, interactions, and interconnections of elements within a system and between a system and its environment, as Holland (2006) stated. So, when the study results examined, one of the major factors related to organizational issues was complexity in Project management (PM), which had positive or negative effects depending on whether the PM strategies and decisions were successful or not. According to the results, the shortcomings of PM was bigger than the improvements. Because if some arrangements were not made at the beginning of the project, then it could be more difficult to adapt or change for the teams. For instance, *PMT's networking skills and outsourcing* helped to solve some time problems, but if there was a *lack of a good plan* at the beginning of the project, there were still ongoing barriers. The shortcomings of *time and budget limits, lack of a useful PM tool or standard process and documents, and the extensive scope of the project* decreased the efficiency of the ID processes. Besides, some directly *PMT related issues*

like management skills, strategies, know-how on the project topic, etc. could have adverse effects on the practitioners or work packages. In addition to PMT related issues, there was the inadequacy of Human Resource Management (HCM) and limitations emerging from the nature of the project. HCM, as one of the sub-topic of organizational issues, was a dynamic that could have a profound impact on the ID process. Although PMT had made lots of improvements in terms of HCM, the result revealed only the negative factors. The practitioners generally believed that there was the inadequacy of HCM and the sources of this problem emerged from *unclear or wrong distribution of tasks, lack of some Non-Key Experts, no experience in MOOC Instructional Design Project, many people to manage, lack of orientation of the people/firms in the project, lack of guidance for the junior members and complications depending on outsourcing*. As understood from the reasons, there seems to be a general orientation and guidance problem for both practitioners and outsourced firm workers.

When the results related to *limitations emerging from the nature of the project* examined, there were also several issues regarding PM. For instance, *type of the Bilgeİş project* was a global budget, and this type was very different from the fee-based type projects in terms of project framework, which provided visibility of the work packages and the outputs. It provided more motivational factors for the practitioners. So, in connection with this factor, *limited incentives for CT, no sustainability plan, and too general technical documents of the project* were also limitations that emerged from the nature of the project. Moreover, *E-Learning sector capacity in Turkey* was a barrier for project implementation and ID process due to the experience and number of firms. In addition to these factors, CT's role on the project was very crucial in terms of their responsibility and appearance as the owners of the MOOC portal. They stated that they *felt high pressure for being the control mechanism and maintaining their university prestige*. The suggestions related to PM have shown some well known but hard to use tips for a more effective ID process. One of them is that project plans should be realistic and clear as much as possible. Second, an independent project consultant should guide the PM and project process. Third, for better project management, a software development tool /project management tool should be used. Moreover, there should be some identifications about the project practitioners. For instance, team leaders should have full

knowledge of the project, small teams should be created based on specific roles and missions, and lastly, all the teams should be work synchronously and interconnected. There were also suggestions related to HCM, which is an integral part of PM and organizational issues. Generally, *choosing the right experts based on their experience and qualifications* was a valuable suggestion. The identification of *job roles should be clear*. For instance, the presence of SMEs in the whole pdMOOC creation process issue was mainly related to the form of an agreement signed with the firm. Therefore, HCM should *plan the responsibilities of the works* in a particular way. Also, *motivation sources should be provided based on the importance of work packages*.

From the standardized Quality Management (QM) vs. barriers of QM perspective, although the effects of QM could be seen in every phase and work of the ID process, this dynamic was directly related to organizational framework and decisions. So, if the QM was constructed in a standardized way, then the QM process got more comfortable and more transparent. On the other hand, if there were some organizational problems with QM, then the works started to be complicated. According to the results, the practitioners believed a standardized QM was an enabler for the ID process. At the same time, there were still barriers like an *insufficient number and extensive workload of QAT*. Moreover, since *QAT has no QA leader and independent working environment* for them, they could not work comfortably and healthy during the project lifetime. On the other hand, *their existence in the project, presence on every phase of the ID, experience, and objectivity* was fundamental in terms of standardized QM and efficiency of ID. Also, since they *developed some rubrics* and checklists for the ID process, this helped to manage works healthier and more visible. When the QM related suggestions examined, it is possible to claim that the QA Process should progress based on both people and document cooperation. For instance, *the checklists* should be developed for standardization and objectivity. Moreover, a *superior controller /QA auditor* should be in the QA team. So, there should be a balanced and intertwined QA process for more objective and adequate quality assurance. *Table 5.8* shows all negative and positive factors about PM, HCM, QM, and the nature of the project related issues and suggestions.

Table 5.8 *Improvements and problems on organizational issues*

Factors	Sub-factors
Improvements in PM	1. Networking skills of PMT 2. Outsourcing and expanding the teams
Shortcomings of PM	1. No good planning 2. Time Limits 3. Budget Limits 4. The extensive scope of the project 5. PMT related issues 6. Lack of a useful PM Tool 7. Lack of standard process and documents
PM Related Suggestions	1. Team leaders should have full knowledge of Project 2. Small teams should be created based on specific role and missions 3. An independent project consultant should guide the process 4. Project plans should be realistic and clear 5. A software development tool should be used 6. All the teams should be work synchronously and interconnected
Inadequacy of HCM	1. Unclear or wrong distribution of tasks 2. Lack of some Non-Key Experts 3. No Experience in MOOC Instructional Design Project 4. Many people to manage 5. Lack of orientation of the people/firms in the Project 6. Lack of guidance for the junior members 7. Complications depending on outsourcing
HCM Related Suggestions	1. All experts in the project should be qualified and experienced on their job 2. Motivation sources should be provided based on the importance of the work package 3. SMEs should be included in all project
Limitations emerging from the nature of the project	1. E-Learning sector capacity in Turkey 2. Type of Project 3. Too general technical documents of the project 4. No sustainability plan 5. Lack of a project consultant 6. Limited Incentives for CT 7. The high pressure felt by CT for being the control mechanism. 8. University Prestige
Standardized QM	1. The existence of the QAT 2. Experience of QAT 3. Presence on every phase of ID 4. Preparing rubrics for ID Process 5. The objectivity of QAT
Barriers to QM	1. Insufficient number of QAT 2. No QA Leader 3. No independent working environment for QAT 4. The extensive workload of QAT
QM Related Suggestions	1. The checklist should be developed for standardization and objectivity. 2. A superior controller/QA auditor should be in the QA team. 3. QA Process should progress based on people and document cooperation

These results are likely to be related to all general organizational issues indicated in other studies. Because, as most of the researchers indicated, all projects similar characteristic features like budget, schedule, HCM and quality standards, etc. (Belout & Gauvreau, 2004) and scope, time, and money, which are called the triple constraints, are well-known challenges in every project (William van Rooij, 2010). That is why PMT must understand the triple constraints before the project (William van Rooij, 2010). Also,

since PM is managing a specific form of process in an organization (Meredith & Schafer, 2010, as cited in Pan, 2012), each project process has its own uniqueness, an ultimate goal which should be achieved in a strict time frame (Belout & Gauvreau, 2004). The projects are conducted multiple activities that should continue in parallel or sequentially (Pan, 2012). Specifically, there are challenges like *limited practitioners, funding, and turnaround time* challenges the projects to aim to create online instruction (Van Rooij, 2010). Therefore, PMT should manage communicational issues, HCM, documentation, and risk management, etc. (Layng, 1997; as cited by Pan, 2012). An effective project manager is a professional who should have several skills like leadership, problem-solving, communication, and context knowledge (Brill, Bishop & Walker, 2006). At the same time, having a grasp of people's expertise and people management is crucial for project managers (Brill, Bishop & Walker, 2006). On the other side, HCM has a strategic role in PMT (Belout & Gauvreau, 2004).

Most of the given results of improvements and problems on organizational issues are in line with some of the previous studies. For instance, there is an important argument which is approved by AECT's (2000) published standards: "Based on the literature reviewed and reported earlier in this position paper from both researchers' and practitioners' perspectives, Project Management and ISD should be regarded as two of the core skills of instructional technology" (Pan, 2012, p.11). So, to be able to achieve an ID project effectively and efficiently, PM and instructional systems design (ISD) should be in coordination (Smith & Ragan, 2005). On the other side, in contrast to earlier findings, one of the most dominant motivation is reputation and prestige for a university or institution for building a MOOC portal (Hollands & Tirthali, 2014; Jansen et al., 2015; Patru & Balaji, 2016), the current study presents "university prestige" as a limitation for effective working since the responsibility. The current results about organizational issues further support the following ideas:

- The documentation process of PM is crucial for the success of any ID project (Van Rooij, 2010)
- PMT who manage ID projects should be skilled as well as instructional designers (Van Rooij, 2010)

- PM should be embedded in the ID process for a successful implementation of the project (Van Rooij, 2010)
- PMT should effectively manage communication among the team members and with project stakeholders (Pan, 2012).
- PMT should prepare good documentation for practitioners and stakeholders (Pan, 2012).
- Especially, “in tough economic times, even corporate and government resources for designing online instruction have been reduced, with large instructional design projects being replaced by smaller, less complex and less resource-intensive design projects.” (Van Rooij, 2010, p.854).

5.2.8. The other organizational issues in the pdMOOC ID process

Two more important dynamics were investigated under the topic of the organizational issue part from HCM, QM, and PM-related dynamics: *1. Effective vs. complicated organizational communication and 2. High Motivation vs. Perceptions/Expectations.*

Effective vs. complicated organizational communication

Organizational communication was a severe dynamic for all the projects and the outputs. According to the results, as a decisive factor, effective organizational communication includes these conditions: *Open communication, common language, effective /productive meetings, and collaborative working.* However, if the practitioners perceived the organizational communication was complicated, then it prevented a health ID process. Based on the declarations of the practitioners, the reasons for this complexity could be *wrong communication channels for negotiations, many people to communicate, e-mail traffic, not effective communication in monthly meetings, wrong communication, lack of common language on the ID process, and lastly, not being able to communicate.* The suggestions that emerged from an organizational communication issue has three roots: good communication, direct communication, and various communication. So, according to the practitioners, if we want to create effective working environments, effective communication can help to solve several problems, whether they are technical or social.

High Motivation vs. Perceptions / Expectations

From the standpoint of the organizational issues, there were also some negative and positive dynamics that affected the practitioners' feelings, behaviors, and ideas about the ID process and the outputs. While the high motivation of the practitioners was an enabler for the process, their perceptions and expectations prevented and disabled the effectiveness of the ID process. The practitioners stated some reasons which increase their motivation. These were *their usefulness sense for society, their dedication, team leader's (supportive) approach, Bilgeş's uniqueness, and it was a prestigious University's project*. Besides, according to the results, *pre-assumptions, previous experiences, different priorities, different expectations, unclear expectations, and unrealistic expectations* were disadvantages for the ID process. They indicated that they felt stressed and uncomfortable due to many reasons, and this situation negatively affected the process. For instance, *self-censorship* on writing comments and feedbacks prevented the improvement of the pdMOOCs. *Table 5.9* shows all negative and positive factors about organizational communication, motivation expectation, and perceptions issues. Also, organizational communication-related suggestions are represented.

Table 5.9 *The other organizational issues in the pdMOOC ID process*

Factors	Sub-factors
Effective organizational communication	1. Open communication
	2. Common language
	3. Effective meetings
	4. Collaborative working
Complicated organizational communication	1. Wrong communication channels for negotiations
	2. Many people to communicate
	3. E-mail Traffic
	4. Not effective communication in monthly meetings
	5. Wrong communication
	6. Lack of common language on the ID process
	7. Not being able to communicate
Organizational Communication Related Suggestions	1. Good communication should be established between teams and within teams
	2. Direct communication/f2f Meetings should be used
	3. Feedbacks should be provided in various ways
Perceptions and expectations	1. Pre-Assumptions of teams
	2. Previous Experiences of teams
	3. Different priorities of teams
	4. Self-censorship of CT
	5. Different Expectations of teams
	6. Unclear Expectations of teams
	7. Unrealistic Expectations of teams
High motivation	1. Usefulness sense for society
	2. Dedication
	3. Team leader's approach
	4. Prestigious University's project
	5. The uniqueness of the project

As stated in the previous part, one of the most dominant motivation is prestige for a university while creating a MOOC portal (Hollands&Tirthali, 2014; Jansen et al., 2015; Patru & Balaji, 2016). Similar to this finding, the current study also found that working for a prestigious university's project is a source of motivation for practitioners. Another important finding was that effective organizational communication, which includes open communication, common language, effective meetings, and collaborative working, is a big facilitator for the whole ID process. Prior studies also have noted the importance of effective communication by emphasizing the huge need for time and effort to create a common understanding of the coordination of tasks and activities (Salim, 2014). On the other hand, according to the correlation analysis study of Belout and Gauvreau (2004), there is no significant relationship between project success and the project practitioners' factor, while the current study presents lots of project practitioner related factors affecting the efficiency of the project and outputs. On the other side, there are several studies focus on the managers' engagement in redundant communication, which refers to sending the same message to the same recipient sequentially through different channels in the literature (Leonardi et al., 2012). The findings of the study related to organizational communication were also reported by Stephens et al. (2013). They stated that it is important to understand people's reactions to several types of redundant communication. So, organizations can design more strategic and effective messages. The results of organizational issues in the pdMOOC ID process supports evidence from previous observations of Salim's (2014) study. For instance;

- Instructional designers should be aware of the importance of creating a common ground with the other practitioners in the project, and that is why communication is a key element at each phase of the ID process.
- In an extended and distributed design project, like Bilgeİş, experts from different professions should coordinate their efforts. However, there are several limitations due to time and distance in the project process.
- “Future works which incorporate collaborative tasks for the instructional designers should be able to function as a communication tool as well as perform design instruction rather than focusing on the process and tool development.” (p.80).

5.3 Implications of the findings

The study contributed to the MOOC research community by revealing the ID insights of a pdMOOC portal. From a universal perspective, the pdMOOC concept and its' design details were provided as the strengths of the study to the literature. On the other hand, given the limitations, the results of the current study cannot fully generalize regarding how an instructor/institution can use stated ID strategies but also the outputs, and the process of the pdMOOC creation process might be useful to MOOCs that have similar characteristics with pdMOOCs. Besides, the factors identified may help to awareness of how effective pdMOOC design can be possible by dominating the dynamics of the process.

Besides, since this was a longitudinal study, it also includes reliability studies in terms of the change of what people say or write over time. So, the changes, contradictions, and dilemmas were also presented evidently. As Zhu, Sari, and Lee (2018, p. 37) stated, "If people from organizations outside of university settings became more involved in MOOC research, they might enrich the perspectives related to MOOC applicability and design challenges. They might also lend important insights into MOOC functioning and the innovations needed for the success of MOOCs in the future." Also, it is possible that the instructional approaches, methods, strategies, and design dynamics in the current study can be beneficial potentially for future instructors and instructional design personnel who intend to build a MOOC project or ID project. *From a pedagogical standpoint*, pdMOOCs' instructional strategy was based on some common useful principles of informal procedure learning, workplace learning, and minimalistic learning, but the project structure could allow a formative ID process, and it should not be neglected that the aim is not to apply a design theory for an application intentionally in the Bilgeİş project.

Another significant feature and contribution of the study is the selected methodology. Quantitative methods, which were the dominant research approach, whereas qualitative studies were the least frequently used methods in MOOC studies (Zhu, Sari & Lee, 2020; Veletsianos & Shepherdson, 2016; Zhu et al., 2018). Moreover, the formative research

method enables developmental research and action research, which focus on improving design theory for instructional practices or processes (Frick & Reigeluth, 1999). That is why this study's methodology has the power of providing guideline based on the data coming from the action and developmental research. Moreover, the study contributes additional evidence about MOOC ID. Jasnani (2013) highlights the need for a specific instructional design for MOOCs by stating MOOCs run on an LMS and a crowded learner community (Jasnani, 2013 as cited by Kopp & Lackner, 2014, p.7144).

There are several research studies (e.g., Ertmer et al., 2008; Yanchar, South, Williams, Allen & Wilson, 2010) which present the details about the lived experiences of instructional designers and practitioners, practical use of theories, and common challenges, etc. Therefore, these kinds of research studies provide the advantage of transferring the lessons learned from the project and experience to the literature (Williams et al., 2011). Therefore, the theorists and researchers in the Instructional design field can benefit from the experiences and decisions of how theories, models, evaluation strategies, etc. are used in the world of everyday practice. Finally, as Jasnani (2013) highlighted the need for a specific ID model for MOOCs by stating MOOCs run on an LMS and a crowded learner community, this study helped to understand the process of creating the pdMOOC ID model.

One of the most important implications of the study is, as given in *Figure 5.3*, the proposed pdMOOC ID Process presentation. The model includes two main phases include iterative cycles to create a candidate pdMOOC 1. Analysis and Prototyping, and 2. Design, Production, and Testing. As mentioned before, instructional designers' initial test process covers all usability and accessibility tests and so a *candidate MOOC* is ready for end-user tests. In order to produce multiple courses simultaneously in a short time, courses continue to be revised by the feedback when they are released. Also, the initial testing process, including completed course testing and private mode processes, helps to perform very detailed control and detect errors before the end-users. Similarly, a non-linear ID Model, Eternal, Synergistic Design Model by Crawford (2004) suggests a continuous design and development support e-learning ID requirements. Moreover, the

communication among the QAT, SMEs, and organizational team should be continued for more healthy formative evaluation and revisions.

Figure 5.2 represents the pdMOOC ID Process, which includes all steps from the analysis studies to a candidate MOOC on the portal before releasing. These steps mainly cover outline writing and approval, raw content preparation (writing, QA testing, revising, and approval), content translation (if needed) and approval, storyboarding (writing, QA testing, revising, and approval), production (audio-visual materials development, coding, QA testing, revising, and approval), transferring the course to the MOOC portal, adding extra course materials, MOOC initial testing, MOOC QA control and revising. In this period, SMEs, QAT, and organization members evaluate formatively the process due to some characteristics of the pdMOOC like the subject, instructor, or specific needs, etc. Therefore, this representation focuses on more formative evaluation, continuous revisions, initial testing, and intertwined phases than the others.

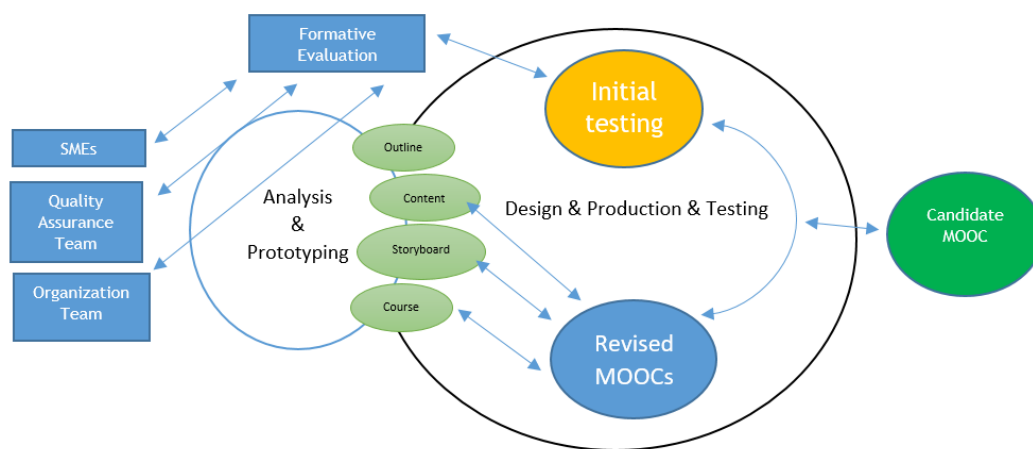


Figure 5.2. The representation of pdMOOC ID Process

As seen in *Figure 5.2*, there are two main phases to create a candidate pdMOOC for the portal: 1. Analysis and prototyping (small and blue circle), 2. Design, production, and testing (big and black circle). These two phases include all activities about analysis, raw content preparation, storyboarding, production, and initial testing. However, since

analysis&prototyping phase activities cover both analysis studies and the first cycle of whole course production, it is possible to see prototypes of the courses. All other iterative cycles belong to the second phase (Design & Production, &Testing). Thus, it is possible to draft and shape multiple courses simultaneously in a short time. Besides, the testing term refers to all usability and accessibility tests before the instructional designers' initial test process. Since there is still no end-user evaluation in the ID process, pdMOOCs will continue to be shaped by the feedback when they are released. That is why the last product is named by "candidate pdMOOC" in this figure. Moreover, the Initial testing phase covers two main processes, which are completed course testing process and private mode process.

Completed Course Testing Process in Initial Testing:

- Producers submit the course as a completed course.
- QAT, MEE, and instructional designers test the completed course.
- Producers (PT) do the needed revisions.
- Producers (PT) creates SCORM packages.
- Portal developers add SCORM packages and additional course materials to the portal.
- The course is submitted as *candidate pdMOOC*.

Private Mode Process in Initial Testing:

- Portal developers open up the candidate pdMOOCs in Private Mode on the portal.
- QAT controls the *candidate pdMOOCs* in Private mode.
- Producers (PT) and portal developers do the needed revisions.
- Instructional designers and a tester group take the candidate pdMOOCs like the end-users.
- Producers and portal developers do the needed revisions.
- The *candidate pdMOOC* is brought to the end-user.

To sum up, all the results of the study mainly point out the importance of the contribution of qualified analysis studies, qualified raw content, formative evaluation, storyboarding, production/initial testing, quality assurance, organizational management, and project characteristics, etc. to the effective pdMOOC ID process. Furthermore, the results showed that some internal factors might have a significant effect on the ID process, and the communication quality among the practitioners may have significant effects on the ID process and perceived MOOC quality. From a general perspective, this study's findings have similarities with many other studies. For instance, E-xcellence framework by EADTU, Kopp and Lackner's (2014) checklist about effective MOOC design, Guardia et al. 's (2013) MOOC design principles, Scagnoli's (2012) suggestions for handling the MOOC design challenges, and Clark and Mayer's (2011) e-learning

principles to teach job tasks. Also, Siemens's (2012) suggestions for planning and running MOOCs easily (determining content, planing interactions, promoting and sharing, iterating and improving, etc.) Especially, design principles provided by de Reuver et al.'s (2019) have a very similar base. These principles basically reflect the importance of simplifying the instructional materials which employers can easily understand; providing additional materials depending on the desire of the more advanced level learners; limiting the duration of lessons to 2-4 hours a week, having more flexible deadlines for assignments, projects, etc.; preferencing of inspiring work examples suitable for the learning context of assignment samples; preferring audio-visual materials rather than texts materials; presenting of applications that learners can benefit immediately about their own business and supporting forums and discussions. The present study also confirms previous research studies' findings:

- These results corroborate the findings of a great deal of the previous work in Salim's (2014) study, which reveals that there is a very limited research study regarding collaborative environments and iterative processes in the ID process.
- The minimalistic instructional approach created by (1998) can be the most appropriate instructional approach for workplace learning design since it supports diversity regarding participants' needs and features and provides meaningful tasks, context-related training, supportive active learning, error recognition, and recovering activities, and so forth (Esfer& Cagiltay, 2018).
- Conceptual learning should be minimized, and procedural learning should be maximized in digitalized workplace learning. The focus should be put on informal learning to handle dropout and absenteeism problems; we should provide the needed information to solve a real-life issue, with small steps, with learner guidance and encouragement in every stage of the learning process. The most important role in achieving these objectives is played by subject matter experts, course storyboard writers, and developers (Esfer& Cagiltay, 2018).
- ID quality of MOOCs is questionable (Margaryan, Bianco, & Littlejohn, 2015) and ID of MOOCs is still not a well-examined topic, and the quality of MOOC design should be investigated in more detail (Yousef, Chatti, Schroeder, & Wosnitza, 2014; Cagiltay, Esfer & Celik, 2020).

- Adaptive designs in MOOCs provide a better learning environment and experience due to their flexibility and individualized constructure (Egglofstein & Ifenthaler, 2017).
- If the learning environment is designed by the combination of formal and informal learning principles, then supporting self-regulated learning at the workplace also matters (Ertmer & Newby, 1996; Lehmann et al. 2014, cited by Egglofstein & Ifenthaler, 2017).
- In MOOCs for digital workplace learning, assessments should be directly linked to job skills, which they need in real life, and the measurements should go beyond the multiple-choice questions (Egglofstein & Ifenthaler, 2017). Problem-centered assessments can be useful in terms of improving mental modes, which able to connect with learners' business contexts (Egglofstein & Ifenthaler, 2017).
- Adding quizzes to the MOOC (Bonk et al. 2018), determining the right assessment (Drake et al. 2015; Wong 2016), providing multiple options for MOOC content (Bonk et al. 2018), implementing correct instructional design (Terras & Ramsay, 2015), trying to development of instructors and learners' ICT skills of both (*Patru and Balaji, 2016*) and the importance of instructor presence (Guardia et al., 2013) also support the current study's findings.
- When trying to produce pdMOOCs based on ICT issues, as Egglofstein & Ifenthaler, 2017) stated, people prefer MOOC topics are directly related to jobs, included social skills (communication, management, presentation, etc).
- Course time is less than 20 hours, and learner effort may be less than 5.5 hours per week can achieve supporting and decrease dropout rates (Anutariya & Thongsuntia, 2019).
- Identified three main enablers for MOOC ID by Sari, Bonk, and Zhu (2020) are also compatible to this study's findings: "the availability of various content and technology resources, the acceptance and understanding of effective forms of work-sharing and collaboration and the support for various legal, administrative, and instructional design issues" (p.157).
- The pdMOOC development and testing process were quite similar as long as Wong (2016) describes it in the study, which is one of the rare studies in the literature, presents detailed information about the experiences while creating a

MOOC. Firstly, Wong (2016) suggested that to deliver courses in a limited time, there should be parallel process for the course production and stated that detailed Gantt chart was used by project management strategy. This parallel process refers to “the first course could be running, while the second is under test, while a third is in the middle of production, while a fourth is in the middle of scripting” (Wong, 2016, p.3). Also, there was a big pressure from the production team regarding pulling the content developers for several needs about decreasing the time for scriptwriting and reviewing the content.

- From the SME perspective, there are three traditional MOOC instructor roles: “the distant ‘rock star’ lecturer, the co-participant or facilitator within a network, and the automated processes that serve as proxy tutor and assessor” (Ross et al., 2014, p. 58 as cited by Watson et al., 2016). So, in pdMOOCs, there were instructors in the pdMOOC ID process, but when MOOCs were launched, SMEs were invisible to users, and online tutors were communicating with users. From this perspective, the pdMOOC instructor role can be defined as “the distant ‘rock star’ lecturer.
- Also, as Egloffstein (2018) indicated, designing MOOCs for digital workplace learning is very complex because the process includes several different aspects of technology, ID, and organizational issues. More specifically, one of the important challenges is organizational issues while creating MOOCs for workplace learning (Egloffstein, 2018). That is why to raise awareness about the MOOC ID process, change management, cost issues and is crucial among the PMT members (Egloffstein, 2018).
- Socio-cultural dynamics should be considered by choosing examples, visuals, certification or course structure, and so forth. For instance, for people who want to set up a MOOC portal, one of the most stated suggestions for sustainability coming throughout the process from the stakeholders, academicians, and other MOOC portals was: “As long as the courses are free of charge, they can be perceived as worthless.” (Steering committee notes). As a solution, they generally suggested that the courses may be charged a fee. They argued that it would be beneficial to add value to the certificate. Although this suggestion is

contrary to the nature of the MOOC concept, many MOOCs are offered for a fee today, and generally, they are the popular ones. So, maybe these kinds of suggestions may be discussed based on socio-cultural dynamics.

- As Cagiltay (2001) pointed out, the focus should be on selecting the right instructional strategies rather than technological strategies while designing any kind of distance learning environment.
- A sustainability plan should be considered in terms of evaluation of the MOOCs, updating the contents, technical infrastructure, and instructor/tutor management, etc.
- The reporting required for the whole process should be determined in advance and shared with the relevant stakeholders in the follow-up and should be shaped in line with expectations.
- For continuous improvement and evaluation of MOOCs' effectiveness, the impacts should always be examined (Patru & Balaji, 2016) and redesigned courses based on the learners' feedback.
- Although the ID process of MOOCs is similar to any kind of online courses (Video, audio, screen recording, mixing, editing, post-processing, etc.), still it should be noted that there can be different *touches* based on MOOCs' open and massive structure (Bali, 2014; Drake et al., 2015). Basically, the ID of MOOCs includes three-part like preparing content, activities, and assessments in terms of developing content for an SME / instructor (Drake et al. 2015).

5.4 Practical suggestions for practitioners

It is hoped that an enhanced understanding of pdMOOC ID enablers and challenges and considerations will help the MOOC instructors/institutions to create more minimalistic, easy to complete, and efficient MOOCs. So, the researcher expects that this study is an impulsion to examine the ID process of pdMOOCs to create more qualified pdMOOCs. The practical suggestions for practitioners include for online instructors, educators, MOOC providers. According to the current study results, the prescriptions for an effective ID process for pdMOOCs are listed in the following:

a. Before starting the ID process

Project Planning: Lack of a good project plan or sustainability plan, time and budget limit, the too extensive scope of the project, lack of a useful PM tool, and too many people to manage can create big challenges. So clear, realistic, flexible, and including different solution strategies plan should be done. Also, while a restricted project plan might be useless, and it could cause disappointments; an inexplicit strategy based on the progress could cause time loss. Outsourcing and expanding the teams may be solution based on the time limit. Moreover, for objectivity and visibility of the project process, an independent consultant should guide the whole process based on the project plan.

Communication: Positive attitudes, open communication, direct communication, common language, effective/productive meetings, and collaborative working can positively affect the ID process. On the other hand, the tone of feedback may cause barriers for effective communication, which include negativity in written language. Also, there can be problems such as wrong communication channel for negotiations, many people to communicate, email traffic, ineffective communication in monthly meetings, wrong communication, lack of common language on ID process, and not being able to communicate, pre-assumptions, and previous experiences, self-censorship, different priorities and expectations, unclear and unrealistic expectations can cause communication problems. So, open and effective communication, using common language, may be an advantage both between and within the teams may be a facilitator for an effective ID process. Face to face meetings may be a successful strategy to communicate rather than the other communication channels. For an effective organizational communication, feedbacks in the ID process should be provided in different ways in the ID process. Also, if the course documents have a lot of detailed comments and replies, and then some of them may be forgotten or ignored.

Documentation: Technical documents should be written in detail, and every practitioner of the ID project should be aware of the project requirements, framework, and outputs. That is why too general technical documents can create misunderstandings. At the project writing phase, a pre-analysis study examining possible target groups' needs and fieldwork should be done in order to save time and being more knowledgeable.

Motivating practitioners: Prestigious institutions' projects can affect the attitude and motivation of the practitioners, stakeholders, decision-makers, and participants positively. Usefulness sense for society may be a trigger to increase the motivation of the practitioners. Motivation sources should be provided based on the importance of the work package. Also, the usefulness sense for society, dedication, team leader's (supportive) approach, uniqueness of the project, and the institution's prestige can be motivation sources for the practitioners.

Selecting Experts: PMT's networking skills can make the ID process more efficient in terms of finding the right experts. All experts and team leaders in the project should be qualified and experienced in their job. For instance, qualified SMEs who have experience in both the academic and education sides should be selected for raw content writing. Also, small teams should be created based on specific roles and missions. However, if the practitioners' tasks are not defined clearly or their duties are not adequately explained, outsourcing can also make works complex.

Orientation: Orientation studies should be done for all practitioners who will take place in the ID process. Because the practitioners may have struggled with how they should test and revise while there were lots of problems in each phase of the ID. Being on the same page may be a challenge for the practitioners. If there is not a proper orientation process for SMEs and all practitioners, they can not imagine what their focus should be, how the desired content should be, or how the contents should be seen in a MOOC, etc. Moreover, all teams should be encouraged to work synchronously and interconnected in orientation studies. Especially, before the ID process starts, SMEs should be informed that they should be included in all ID process and can share her/his ideas about effective instruction or interaction/simulation. SMEs and the other experts should be open to provide feedback, and they should be informed that there is a possibility of requesting revisions on any kind of outputs. Also, course examples and approved instructional materials should be shared with the experts in the ID process.

b. Analysis & Prototyping

Prototyping: In initial times of the ID process, trying to develop course prototypes can guide and help the practitioners. Because lack of a sample MOOC to guide may cause misunderstandings and ineffective processes. At least the prototypes of different kinds of course elements like quizzes, animations, green screen videos, and outlines, etc. should be provided. Prototypes should be created, and standards and demands for the ID process should be clearly defined. Some standard bases should be created in the pilot implementation of the courses. For instance, trying to identify the instructional methods in the initial phase of the ID process can make things work.

Analysis Studies: The analysis studies should be comprehensive to identify the majority of needs, and determining some learning needs (course topics, context, etc.) based on foresight can be an effective way to prevent time loss. Also, all analysis studies should be finalized before other phases. *Conducting the pre-analysis studies*, practical workshops, *facilitating for taking stock of the situation* like SWOT analysis, *and creating a knowledge base method* can be beneficial for raising awareness of the practitioners and for identifying end-users' needs, expectations, initial feedbacks. Also, "What works?" should be meticulously examined. Creating a knowledge base obtained from first-hand experiences (study visits and best practice analysis, etc.) can be beneficial for raising awareness of the practitioners.

Quality Assurance: QA Process should progress based on people and document cooperation. So, a standardized QM process with documents (rubrics, checklists, etc.), a superior controller, and an experienced team can make the ID process more efficient and objective. Preparing documents for each phase of the ID Process by QAT can make clearer the works and roles. Iterative testing in the whole ID process may be a useful facilitator for the quality of the products. Collaborative working may be a facilitator. Double-sided testing can be an enabler for objectivity and creativity. The objectivity and experience of QAT can be facilitator. As an accelerator and for more objective studies, QAT should include a sufficient number of members depending on the course number and variety. Micro templates and "how to read storyboards" document should be created.

In initial times of the ID process, creating standard bases for the general process with the help of transferring the experience of the teams can be beneficial. Also, a software development tool should be used.

Course outline preparations: The courses' outline should consist of the following elements: Learning objectives, competencies to be acquired after attending the course, table of contents of the course (structure, modules, chapters), previous knowledge required, assessment methods to be used – in general, some interactions ideas, some video ideas. The related courses do not have any obligations in terms of starting a top-level. Info about course subject and course structure should be provided. SME should add a glossary to the raw contents. The scope of the course content should be clearly identified.

c. Instructional approach

Context: Desired course context should be easy to understand, simple, basic, less theoretic, more practical, daily real-life examples. Since the aim is to create informal learning environments, concept teaching should not be in focus. Instead, important concepts should be integrated into context-related examples.

Subject: The advantages and disadvantages of the selected program/ software/tool/ technology should be represented. If the subject is the usage of a software/tool/technology, a comparison brief should be presented regarding why it is selected to learn among the others. At this point, free and user-friendly software/tools/technologies have priority. If the tool/technology has an interface in a foreign language, the instructions should be provided with translation and explanations. Also, the ideas which demonstrate/prove why the course can be important for the target group should be presented.

Measurement: Feedback formulas should be defined. Dynamic / Adaptive testing (strategies should be implemented. There may be three types of measurement: 1. Automatic assessment (quizzes, exercise), 2. Tutor assessment (assignments, discussions

participation, final projects), and 3. Peer assessment (assignments, final projects). In tests, the order of questions or the order of options should be mixed. Rubrics should be provided for needed assignments. All assignments and quizzes should be relatively easy since to feel successful is important.

Evaluation: MEE should make clear all the quiz and assignment revisions. An adaptive branching strategy should be integrated into the course. Different evaluation strategies and different kinds of questions should be used. The learners should retake the exams as they want. The maximum score should be registered as the learner's result. These exam results should be recorded and be visible on the course page. The pdMOOC certificate should contain the following information: Title of the course, Topics covered by the course, date, number of hours of learner engagement, name, the surname of the learner, signatures of the relevant persons from relevant institutions, QR code. Examples should be chosen regarding workplace or daily needs. Presenting the content should be linked to authentic tasks / examples. Practices or exercises should be directly related to workplace needs.

Strategy: Different instructional approaches should be followed due to the content. Generally, the pdMOOCs should be instructional needs-oriented, more simple, less complicated, more procedural, less conceptual, more practical, less theoretical. The pdMOOCs' contents should have more problems, more solutions, fairly human presence, more interactivity, more variety, more visualization, less wordiness. However, there may be several technical difficulties in constructivist strategies implementation.

The content presentation: The content should be divided into a maximum of 3 or 4 parts in terms of density and the structure of the content (SCORM packages). The parts should include similar contents in terms of cognitive load. The content should be presented cumulatively. So, this does not mean that repeating the same information in different areas. Rather it is important to follow content by gathering up progressively. The content should be arranged from basic to complex. Information should be presented from general to the specific and from easy tasks to the difficult ones. After the course is completed, what kind of advantages/ instructional outputs will be gained should be

clearly stated at the beginning of the course. If there are different shortcuts or ways to complete a task/or exercise in the course, all possible options should be provided. The content should be presented from the beginning of an application. For instance, the tasks should include the “sign-in” section or writing the web address to the browser. The summary sections should be added at the end of the parts. These summary sections can include important concepts/remarks/aims of the part, information about the process. The menu items of a program or long explanations about a subject can be provided as a pdf document in the course in order to give more detailed information. If there are differences in applications/exercises etc. the directions should be given both for Windows and Mac PCs. If there are different shortcuts or ways to complete a task in the course, all possible options should be provided.

Examples: If there are current news/statistics/legal regulations related to the course topic, they should be presented at the beginning of the course. The examples and problem situations should be based on daily and needed issues. It should be avoided by any kind of declarations that have the possibility of misunderstanding or damaging someone’s cultural/ religious/ national values. It should be paid attention to not to use any advertisement, but if some brands are important to explain and compare in the context, then they will be used. Examples should be directed to solve real-life problems. Interactive activities, various instructional elements should be provided.

d. Design & Production & Testing

Raw Content Writing: The content should be reliable and up-to-date. Simplification of raw contents can help to present more brief, concise, and precise information. Minimizing the scope, sequence, name, screen number of the courses or purification of language, choosing less reading materials can be an enabler. Complex information should be simplified. All the references should be added to the raw content. If SMEs are foreign, the translations should be done regarding the context of the courses. An example of approved raw contents and feedbacks can be shared to clarify the process with the SMEs. If it is possible, face to face meetings should be arranged with SMEs. In order to make easier the storyboard process, it should be noted that some guided practices should

be added. The raw content should include notes, hints, additional information, and remarks, etc. It should be controlled whether the ICT tools or services are coming from a reliable or source or not. Iterative cycles, double-sided testing, Measurement and Evaluation Expert (MEE) testing, and creating some standard base in the raw content revision process can make a more effective revision process.

Redaction: An expert should control the entire raw content in terms of spelling and punctuation rules. The descriptions should be short and precise. The content language should be consistent in all the components. The prescriptions should be easily understood. If abbreviations are used, the explanations or declinations should be given in the first usage. The redaction process should be done before raw content tests are completed.

Audio-visual elements: The visual usage terms (quality, technical standards, etc.) and copyright issues should be highlighted. Visuals and examples should be incompatible with the content language. Also, low-quality video production and voiceover problems like voice quality, volume, mono recording, etc. may also decrease the quality of the course. So the standard of audio-visual elements should be defined and tested in the ID process.

Storyboard Writing: The quality of raw content, cooperative working with SMEs, SWT's know-how on production technology, and brainstorming on storyboards can make a more effective storyboard revision process. SWT can control the feedback quality about the questions and evaluation types, control the suggested evaluation strategies by SMEs, check the format of the quizzes and assignments, provide a holistic and standard approach for all MOOC, compare different evaluation strategies, check questioning styles of SMEs. The quality of raw content may be an enabler for the storyboarding process. Cooperative working with SME may be an enabler for the storyboarding process. SWT should be knowledgeable on production technology. Creating standards on storyboard reading can be helpful for both writers and readers. Brainstorming should be done to choose and apply the content examples. Brainstorming should be done since

writing the storyboard is a concentrated process that should have creativity, different perspectives, clear examples, etc.

Production: Clear storyboards may be the helper for production. The involvement of the SMEs and Storyboard writers to the production can be a facilitator. To be familiar with the production technology can be a facilitator. There should be voiceovers for the titles of the screens. It is allowed to try the number of times in interactive screens. Reformatations on the pre-production process can foster the ID production process.

Testing: The reference point should be approved storyboards for testing. There should be both the testers who follow the course ID process from the raw content writing phase and different tester groups, including independent and experienced experts. Also, there should be SME, and SWT representatives in testing and revision process, and every tester should be familiar with the production technology. Iterative cycles, double-sided testing, Measurement and Evaluation Expert (MEE) testing, and creating some standard base in the storyboard revision process can make a more significant revision process. Double-sided testing can be necessary for clarity and objectivity. The experience and know-how of the testers about the subject can be a helper in terms of improving the quality of the storyboards. Formative evaluation of the ID process can create a more effective ID process since it provides iterative testing and feedback support of different people.

Revision: Categorizing and prioritization the revision requests enables the testing and revising works more transparent and understandable. The support of testers in terms of guidance enables getting more qualified outputs. However, since the ID Process has various intertwined and iterative processes in itself and also mini cycles for every decision, this may cause complexity and time problems. So, it should be noted that the clarity, state of affairs, and recording of revision requests are significant for a healthy ID process. If there were unclear identification of the errors on the test results, then determining the error and its solution may be complicated. Also, excessive feedback may cause complexity.

Portal: The course evaluation system for end-users should be provided. Social interaction should be provided in the course and portal. Business intelligence applications depending on detailed usage analytics, should be provided. The portal should be usable and accessible. Automatic/ peer evaluation should be provided for sustainability. The portal should support mobile devices (tablets, smartphones, etc.) to access courses. The all components in the Portal should be compatible with *WCAG 2.0* guidelines should be followed. Synchronous and asynchronous communication tools should be available. The portal should enable file sharing, assignments, grading, and learner tracking. The portal should permit conditional access and branch in course design. The portal should include various assessment tools, such as assignment (file upload, online text entry, audio recording, etc.), quiz, which supports different question types, and peer assessment. Collaboration tools to enrich the learning environment should be available. Different methods of enrolments, such as manual, Lightweight Directory Access Protocol (LDAP), external, etc. should be available. The portal should display SCORM compliant educational materials. Logs for learner activities, including educational material views, course participation, grades, etc. should be available.

5.5.The Limitations of the study

There are several limitations to this study. A first and most significant limitation, as declared earlier, the researcher was not only an independent observer in the pdMOOC project process but also she was a member of CT and took an active role as an instructional designer. Meanwhile, this role and situation were necessary to investigate the process in a more in-depth perspective. Therefore, if the researcher was not one of the practitioners, to conduct this study could not be possible due to the nature of the project and ethical conditions. Since this limitation is inevitable, it is also one of the most critical assumptions that the researcher uses objective and critical lense during the study. The other limitations were listed below.

Uniqueness limitation: The pdMOOC ID project case has unique features like enhancing university-business interaction, supporting informal learning, covering various ICT and soft skill subjects, etc. Moreover, each pdMOOC production process in

the project had different dynamics. Therefore, it was impossible to compare 100 pdMOOCs with each other; instead, there were course groups categorized based on the content or production type. Still, when we look at the only soft skill related to pdMOOCs, there were very different courses from various sectors like solar energy and food beverage service. Besides, mobbing or accessible workplace design courses may differ in terms of their instructional design though they have a similar basis.

Innovation effect limitation: pdMOOC is a new and unknown term for everybody and the practitioners. Even MOOC production can be regarded as a new phenomenon for the practitioners and many e-learning companies in Turkey. So, orientation and adaptation processes were quite long and difficult, and this limitation affected the ID process. Based on these issues, the terminology in the MOOC ID process was complicated. For example, project practitioners could make different explanations about the same concept or use different concepts to mean the same to each other.

The nature of project limitation: The nature of the project was not flexible or suitable to try more various methods and strategies for practitioners. Some time and budget limitations or hesitations about the quality created problems that disabled the prototyping process. Also, although the process could have clear cycles and their outputs, unfortunately, it was challenging to implement some decisions on time.

Data source limitation: In this study, the main source of data is human beings. The views of the people in the project have been used as data. Thus, the trustworthiness of the collected data is based on the correct response of them. However, some participants' thoughts and perceptions were changeable in the process (documents/interviews/e-mails) and even though in the interviews. So, the researcher tried to solve all conflicts during the interviews to detect the reasons. Moreover, it was quite difficult to understand in what sense they said expressions such as "it was good, it worked, it was nice, it was enough". Or, it was difficult to understand what the participants were dissatisfied with when expressing problems precisely. Sometimes "MOOC quality" and "MOOC instructional design quality" terms were used interchangeably.

Data collection limitation: The production team (developers, video makers, MOODLE team, etc.) was not volunteer to talk about the project, and only their bosses could give information about the production part. As observed, the production team hesitated to give details about their initial process based on the company dynamics. So, unfortunately, the majority of DT of *e-learning companies were not convinced to provide info about the process for the interview.*

Data analysis limitation: There were many data, and organizing /analyzing them was complex work. To select and combine the related information from the project documents, different versions of these documents, e-mails, course documents, and interview transcriptions, etc., were difficult. Also, some project reports were not evident in terms of explaining the reasons for the decisions and giving details about the ID process. So, there were lots of versions of the reports, and also eliminated the needed information was challenging.

Data interpretation limitation: This ID project can be regarded as complex adaptive systems since the complex term refers to the inter-relationships, interactions, and interconnections of elements within a system and between a system and its environment. Complex adaptive systems “that involve many components that adapt or learn as they interact – are at the heart of important contemporary problems” (Holland, 2006, p.1). While the qualitative analysis process was going on, to find the real problem and its’ links was a big challenge for the researcher. To examine and explain the inter-relationships, interactions, and interconnections of factors within the ID process. Furthermore, since there were no clear and limited cycles in the ID phase of the pdMOOC ID process, it is challenging to differentiate and interpret the phases for the researcher. In other words, the ID process of pdMOCs had a multi-stage and layered structure that made it difficult the understand and categorize the findings.

The external limitations: The organizational issues had a massive effect on the ID process. Sometimes practitioners could not shape the process due to the PM-related decisions, or they could not improve their works due to the company/institution

dynamics, relationships, and responsibilities. So, several questions about organizational issues remain unanswered at present.

5.6.Recommendations for future research

After this study has been completed, several questions and dynamics remain to be answered. Therefore, some recommendations for future research are listed below:

- Future research can expand on this study's findings by adding the implementation and evaluation phase of pdMOOCs. Investigating perspectives of MOOC participants and MOOC providers and then reshaping the pdMOOCs may provide comparing and contrasting opportunities between practitioners' and end-users' views.
- A further study could assess the long-term effects of pdMOOCs regarding what do the end-users like in the portal, what are useful for them. So, using the Bilgeİş pdMOOC creation study as a starting point, future studies can examine learner evaluation, satisfaction, and experiences for pdMOOCs. So that these recommendations can be validated in revised pdMOOCs, instructional designers and learners' perspectives can be compared. Then, what is needed is a cross-national study involving the pdMOOC ID process and suggestions of them. It would be interesting to interview different end-users from different countries and cities to learn their most or less-favorable experiences.
- A further study with more focus on end-user evaluation therefore suggested. There are still many unanswered questions about to increasement of the MOOC quality, so the research questions that could be asked include ID principles by adding the learners' feedbacks. To develop ID principles of pdMOOCs, additional studies will be needed that include end-user feedbacks and usability reports. The pdMOOC guidelines should be provided for pdMOOCs. It should be noted that using these principles does not guarantee the improvement of quality in MOOCs (Oh, et al., 2019). Instead, they can present a general understanding of the practitioners. This is an important issue for future research.

- In future ID process investigations, it might be possible to use a different approach for data collection, which can be more easier for the researchers. For instance, focusing on just course documents and examining the comments in the raw contents, storyboards, and the MOOC tests can provide more specific details about the process.
- The representation of the pdMOOC ID Process and determining factors affecting the efficiency of the ID process could be applied in both MOOC and online course creation settings.



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APPENDICES

APPENDIX A. TIMETABLE OF THE PROJECT

Time	Activities
2013-2015	Project Idea
November 2014 - January 2015	TOR Writing
June 2015	Clarifications for Tenders
1.07.2015-12.08.2015	Evaluation the Tenders' offers
October 2015	Meetings started with the winner consortium
26.11.2015	Key Experts
30.11.2015	Offer –ToR Orientation Workshops
17/12/2015	Kick Off Meeting - Inception Phase has started
23.12.2015	1. Weekly Meeting
29.12.2015	2. Weekly Minutes
05.01.2016	Content Development Meeting
08.01.2016	3. Weekly Meeting
08.01.2016	First, the 6-course outline has been approved
11.01.2016	Innovative Method
11.01.2016	Inception Report Review Workshop
20.01.2016	Content Development Meeting
22.01.2016	4 Weekly Meeting Minutes
January 2016	Identification of name, logo
26.01.2016	EU Project Management Training
04.02.2016	Content Development Meeting
February 2016	Determining Content and Delivery Specs
February-March 2016	Visibility Studies (brochures, roll-ups, project website, film, etc.)
January- March 2016	Pilot pdMOOCs' Raw Contents Process
10.03.2016	Opening Conference
11.04.2016	PM & PCM TRAINING
17/04/2016	Portal was constructed
March-April 2016	Cooperation protocol with stakeholders
05.04.2016	Sample pdMOOC (candidate)
11.04.2016-13.04.2016	Online Tutors Trainings
April-May 2016	Study Visits
15.05.2016	Sample pdMOOC-Digital Photography
17.05.2016	Content Development Update
12.06.2016	England-Open University Future Learn
10.08.2016	Sample pdMOOC- -revision-on portal
17.08.2016	Course Delivery Process Workshop
25.08.2016	PM Leader changed
27.09.2016	10 candidate pdMOOCs revisions completed
06.10. 2016	The suggestion of high quality pdMOOCs
14.10. 2016	Soft skill pdMOOCs
21.10. 2016	Revisions completed- candidate Pioneer 10 pdMOOCs
11.2017	First Media Press

18.11.2016	Warning Letter
December 2016	Measurement and Evaluation Expert
December 2016	4 of Pilot pdMOOCs on portal
February 2017	Pilot pdMOOCs' production process has been finalised
17.08.2017	Course Production Planning Workshop
12-15 May 2017	Holland Hackathon Study Visit
June 2017	Pilot pdMOOCs on portal
12-17 June 2017	EDEN Conference
June-July 2017	Accessibility Tests
July 2017	100 pdMOOCs on portal (candidates)
August 2017	100 pdMOOCs on portal
08.09.2017-09.09.2017	Bilgelş Hackathon
21.08.2017	Practical Workshops with volunteer participants
28 .08.2017	Membership -Open Education Europa Digital Skills and Jobs Coalition, initiative launched by the European Commission
8 .10. 2017	Techno Run Activity
10.10.2017	Closure of the Project
24.11.2017	100. pdMOOCs on the portal
21.12.2017	Final Report

APPENDIX B. APPROVAL OF THE METU HUMAN SUBJECTS ETHICS COMMITTEE

UYGULAMALI ETİK ARAŞTIRMA MERKEZİ
APPLIED ETHICS RESEARCH CENTER



ORTA DOĞU TEKNİK ÜNİVERSİTESİ
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08 MART 2017

Konu: Değerlendirme Sonucu

Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (IAEK)

İlgili: İnsan Araştırmaları Etik Kurulu Başvurusu

Sayın Prof. Dr. Kürşat ÇAĞILTAY;

Danışmanlığını yaptığınız doktora öğrencisi Sezin EŞFER' in "*Kitleli Çevrim içi Açık Derslerin Öğretim Tasarımı Sürecinin İncelenmesi*" başlıklı araştırması İnsan Araştırmaları Etik Kurulu tarafından uygun görülerek gerekli onay 2017-SOS-031 protokol numarası ile 08.03.2017 – 30.07.2017 tarihleri arasında geçerli olmak üzere verilmiştir.

Bilgilerinize saygılarımla sunarım.

Prof. Dr. Canan SÜMER
İnsan Araştırmaları Etik Kurulu Başkanı

Prof. Dr. Mehmet UTKU
IAEK Üyesi

Prof. Dr. Ayhan Gürbüz DEMİR
IAEK Üyesi

Yrd. Doç. Dr. Pınar KAYGAN
IAEK Üyesi

Prof. Dr. Ayhan SOL
IAEK Üyesi

Doç. Dr. Yaşar KONDAKÇI (Y.)
IAEK Üyesi

Yrd. Doç. Dr. Emre SELÇUK
IAEK Üyesi

**BU BÖLÜM, İLGİLİ BÖLÜMLERİ TEMSİL EDEN İNSAN ARAŞTIRMALARI
ETİK ALT KURULU TARAFINDAN DOLDURULACAKTIR.**

Protokol No: 2012-FEN-007

İAEK DEĞERLENDİRME SONUCU

Sayın Hakem,

Aşağıda yer alan üç seçenektan birini işaretleyerek değerlendirmenizi tamamlayınız. Lütfen **"Revizyon Gereklidir"** ve **"Ret"** değerlendirmeleri için gerekli açıklamaları yapınız.

Değerlendirme Tarihi: 06.03.2017

Ad Soyad: Hetin girmek için tıklayın

☒ Herhangi bir değişikliğe gerek yoktur. Veri toplama/uygulama başlatılabilir.
☐ Revizyon gereklidir ☐ Gönüllü Katılım Formu yoktur. ☐ Gönüllü Katılım Formu eksiktir. Gerekçenizi ayrıntılı olarak açıklayınız: <u>Hetin girmek için tıklayın</u> ☐ Katılım Sonrası Bilgilendirme Formu yoktur. ☐ Katılım Sonrası Bilgilendirme Formu eksiktir. Gerekçenizi ayrıntılı olarak açıklayınız: <u>Hetin girmek için tıklayın</u> ☐ Rahatsızlık kaynağı olabilecek sorular/maddeler ya da prosedürler içerilmektedir. Gerekçenizi ayrıntılı olarak açıklayınız: <u>Hetin girmek için tıklayın</u> ☐ Diğer. Gerekçenizi ayrıntılı olarak açıklayınız: <u>Hetin girmek için tıklayın</u>
☐ Ret Ret gerekçenizi ayrıntılı olarak açıklayınız: <u>Hetin girmek için tıklayın</u>

APPENDIX C. CONSENT FORM

ARAŞTIRMAYA GÖNÜLLÜ KATILIM FORMU

Bu araştırma, ODTÜ Bilgisayar ve Öğretim Teknolojileri Eğitimi Bölümü (BÖTE) Doktora öğrencisi Sezin Eşfer tarafından Prof. Dr. Kürşat Çağıltay danışmanlığındaki doktora tezi kapsamında yürütülmektedir.

Çalışmanın Amacı Nedir?

Bu araştırmanın amacı Bilgelş projesinin 100 dersinin (KAÇD=Kitlel Çevrim içi Açık Ders) geliştirilmesi aşaması ile ilgili görüşlerinizi ve deneyimlerinizi öğrenmektir. Bu süreçte dair düşüncelerinizi, yaşadığınız olumlu /olumsuz deneyimleri, zorlukları ve önerilerinizi paylaşmanız çalışma açısından oldukça önemlidir. Çünkü çalışma sonucunda vermiş olduğunuz bilgiler ışığında proje dahilinde hazırlanan dersler ve süreç ile ilgili öneriler sunmak mümkün olacaktır. Örnek vermek gerekirse, etkili KAÇD tasarlayabilmek için nelere dikkat edilmesi gerektiği bilgisi bu alanda çalışacak kişiler (araştırmacılar/uzmanlar vs.) için faydalı olabilecektir.

Sizden Topladığımız Bilgileri Nasıl Kullanacağız?

Araştırmaya katılımınız tamamen gönüllülük esasına dayanmaktadır. Çalışmaya kimliğiniz ya da kurumunuz ile ilgili bilgiler yansıtılmayacaktır. Cevaplarınız tamamen gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir. Ayrıca görüşme boyunca vereceğiniz cevapların hiçbirisi Proje sürecini veya sonuçlarını etkilemeyecektir. Araştırmanın sonuçları bilimsel ve profesyonel yayınlarda veya eğitim amaçlı kullanılabilir, fakat katılımcıların kimliği/kurumu bilgisi her zaman için gizli tutulacaktır.

Herhangi bir sakıncası yoksa görüşme esnasında ses kaydı almak ve bu şekilde bilgileri daha sonra ayrıntılı analiz edebilmek bizim açımızdan önemlidir.

Katılımınızla ilgili bilmeniz gerekenler:

Araştırmaya katılmayı kabul ederseniz, görüşme esnasında soruları cevaplarken istediğiniz kadar zamanınız vardır. Ayrıca, istediğiniz zaman görüşmeye ara verebiliriz ya da cevapları düşünmeniz için bekleyebiliriz.

Görüşmede soracağım sorular genel olarak kişisel rahatsızlık verecek sorular içermemektedir. Ancak, katılım sırasında sorulardan ya da herhangi başka bir nedenden ötürü kendinizi rahatsız hissederseniz görüşmeyi hemen sonlandırabiliriz. Böyle bir durumda çalışmaya katılmak istemediğinizi söylemeniz yeterli olacaktır.

Araştırmayla ilgili daha fazla bilgi almak isterseniz:

Bu çalışmaya katıldığınız için teşekkür ederiz. Çalışma hakkında daha fazla bilgi almak için BÖTE Bölümü öğretim üyelerinden Prof. Dr. Kürşat Çağıltay (E-posta: kursat@metu.edu.tr) ya da doktora öğrencisi Sezin Eşfer (E-posta: esfer@metu.edu.tr) ile iletişim kurabilirsiniz.

Yukarıdaki bilgileri okudum ve bu çalışmaya tamamen gönüllü olarak katılıyorum.

(Formu doldurup imzaladıktan sonra uygulayıcıya geri veriniz).

İsim Soyad

Tarih

İmza

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APPENDIX D. DEBRIEFING FORM

KATILIM SONRASI BİLGİ FORMU

Bu araştırma daha önce de belirtildiği gibi ODTÜ Bilgisayar ve Öğretim Teknolojileri Eğitimi Bölümü (BÖTE) Doktora öğrencisi Sezin Eşfer tarafından Prof. Dr. Kürşat Çağltay danışmanlığındaki doktora tezi kapsamında yürütülmüştür. Bu araştırmanın amacı Bilgeleş projesinin 100 dersinin (KAÇD=Kitlese Çevrim içi Açık Ders) geliştirilmesi aşaması ile ilgili görüşlerinizi ve deneyimlerinizi öğrenmektir. Bu süreçte dair düşüncelerinizi, yaşadığınız olumlu /olumsuz deneyimleri, zorlukları ve önerilerinizi paylaşmanız çalışma açısından oldukça önemlidir. Çünkü çalışma sonucunda vermiş olduğunuz bilgiler ışığında proje dahilinde hazırlanan dersler ve süreç ile ilgili öneriler sunmak mümkün olacaktır. Örnek vermek gerekirse, etkili KAÇD tasarlayabilmek için nelere dikkat edilmesi gerektiği bilgisi bu alanda çalışacak kişiler (araştırmacılar/uzmanlar vs.) için faydalı olabilecektir.

Bu çalışmadan alınacak ilk verilerin Haziran 2017 sonunda elde edilmesi amaçlanmaktadır. Elde edilen bilgiler sadece bilimsel araştırma ve yazılarda kullanılacaktır. Çalışmanın sağlıklı ilerleyebilmesi ve bulguların güvenilir olması için çalışmaya katılacağınızı bildiğiniz diğer kişilerle çalışma ile ilgili detaylı bilgi paylaşımında bulunmamanızı dileriz. Bu araştırmaya katıldığınız için tekrar çok teşekkür ederiz.

Araştırmanın sonuçlarını öğrenmek ya da daha fazla bilgi almak için aşağıdaki isimlere başvurabilirsiniz.

Prof. Dr. Kürşat Çağltay (E-posta: kursat@metu.edu.tr)

Arş. Gör. Sezin Eşfer (E-posta: esfer@metu.edu.tr)

Çalışmaya katkıda bulunan bir gönüllü olarak katılımcı haklarınızla ilgili veya etik ilkelerle ilgili soru veya görüşlerinizi ODTÜ Uygulamalı Etik Araştırma Merkezi'ne iletebilirsiniz.

posta: ueam@metu.edu.tr



APPENDIX E. INTERVIEW QUESTIONS

Group A (Example for one group)	
1. Genel olarak ilk 10 dersin oluşturulma süreci deneyimlerinizi paylaşır mısınız? <i>Nedenlerini açıklayınız.</i> a. Ders oluşturma sürecinde sizce önemli gördüğünüz noktalar nelerdir? *Sizce neler çalıştı? *Sizce neler çalışmadı? b. Sizce uygulayıcı ekibin bu süreçte önem verdiği noktalar nelerdir?	1. Genel olarak 100 dersin oluşturulma süreci deneyimlerinizi paylaşır mısınız? <i>Nedenlerini açıklayınız.</i> a. Ders oluşturma sürecinde sizce önemli gördüğünüz noktalar nelerdir? *Sizce neler çalıştı? *Sizce neler çalışmadı? b. Sizce uygulayıcı ekibin bu süreçte önem verdiği noktalar nelerdir?
2. Genel olarak ders oluşturma sürecini zorlaştıran unsurlar sizce nelerdir? a. Ham İçerik açısından b. Senaryo açısından c. Ders açısından d. Portal açısından <i>Nedenlerini açıkla mısınız?</i>	
3. Sizce uygulayıcı ekip açısından ders oluşturma sürecini zorlaştıran unsurlar nelerdir? a. Ham İçerik açısından b. Senaryo açısından c. Ders açısından d. Portal açısından <i>Nedenlerini açıkla mısınız?</i>	
4. Proje kurgusu/yönetimi açısından ders oluşturma sürecini zorlaştıran unsurlar sizce nelerdir? a. Ham İçerik açısından b. Senaryo açısından c. Ders açısından d. Portal açısından <i>Nedenlerini açıkla mısınız?</i>	
5. Genel olarak ders oluşturma sürecini düşündüğünüzde, süreci kolaylaştıran unsurlar sizce nelerdir? a. Ham İçerik açısından b. Senaryo açısından c. Ders açısından d. Portal açısından <i>Nedenlerini açıkla mısınız?</i>	
6. Sizce uygulayıcı ekip açısından süreci kolaylaştıran unsurlar sizce nelerdir? a. Ham İçerik açısından b. Senaryo açısından c. Ders açısından d. Portal açısından <i>Nedenlerini açıkla mısınız?</i>	
7. Proje planında ilk 10 ders için ayrılan sürenin uzamasının nedenleri sizce nelerdir? <i>Nedenlerini açıkla mısınız?</i>	
8. Sizce uygulayıcı ekip açısından, bu uzamanın nedenleri neler olabilir? <i>Nedenlerini açıkla mısınız?</i>	
9. Proje başlangıcından bu yana (ilk 10 ders kapsamında) öğretim tasarımı süreci ile ilgili fikirleriniz ne oranda/nasıl değişti? Açıklayınız. a. Değişen fikirleriniz varsa, nelerdir? b. Proje sürecinde değişen ihtiyaç ve isteklerin temel nedeni neler olabilir? c. Değişmeyen fikirleriniz varsa, nelerdir?	
10. Uygulayıcı ekibin geçmişteki deneyimleri/yapmış oldukları işler fikirlerinizi nasıl etkilemiştir? *olumlu? *olumsuz?	
11. Projeye şu an yeniden başlamak mümkün olsa derslerin öğretim tasarımı süreci ile ilgili neleri değiştirmek isterdiniz? a. Projeye şu an yeniden başlamak mümkün olsa ilk 10 dersin öğretim tasarımı süreci ile ilgili neleri değiştirmek istemezsiniz? b. <i>Nedenlerini açıkla mısınız?</i>	
12. Öğretim tasarımı açısından baktığınızda derslerin oluşturulması aşamasında hangi eğitsel felsefe ve yaklaşımlardan etkilendiğinizi düşünüyorsunuz? <i>Nedenlerini açıkla mısınız?</i>	
13. Daha önce çalıştığınız/bildiğiniz/gördüğünüz projeler ile bu projeyi karşılaştırdığınızda farklı bulduğunuz konular nelerdir? a. Bu projeyi özgün kılan sebepler nelerdir? b. Bu projeye özgü sınırlılıklar nelerdir?	
14. Analiz aşaması ile ilgili düşünceleriniz nelerdir? a. Teklif ve projedeki belgelerin analiz aşamasına etkisi konusunda görüşleriniz nelerdir?	
15. Teknik dokümanlarda (ToR, Offer, Interim report, v.b.) belirlenen standartların öğretim tasarımı sürecinde uygulanabilirliği ile ilgili ne düşünüyorsunuz? a. e-mailler ile belirlenen standartların öğretim tasarımı sürecinde uygulanabilirliği ile ilgili ne düşünüyorsunuz? b. Toplantılarda alınan kararlar ile belirlenen standartların öğretim tasarımı sürecinde uygulanabilirliği ile ilgili ne düşünüyorsunuz?	
16. Sizce daha etkili ve verimli bir öğretim tasarımı süreci için neler yapılmalıdır? Önerileriniz nelerdir?	
Son: Süreçle ilgili belirtmek istediğiniz farklı herhangi bir konu varsa, paylaşabilir misiniz?	



APPENDIX F. TRANSLATIONS

...tüm sürece baktığımızda, ihtiyaç analizi yapmanız, SWOT analysis yapmanız, bir MOOC geliştirirken bu tür analizleri yapmak cidden çok faydalı (CT1).

...ihtiyaç analizi anketiyle SWOT şu açıdan önemli sizin bi yerde ne yapacağınıza karar vermeniz açısından, hangi dersleri uyguluyacağınız..en azından alıcı kitlesinin niteliğini görmeniz açısından önemli. En iyi örneklerin incelenmesi (Best practices) de gene aynı şekilde....ilk başta projenin en başında yapılması ve daha sonra sizin yapacağınız işlere yön vermesi açısından önemli. Genelde zaten hemen hemen bütün projelerde aynı şeyler oluyor. Önce bir araştırma yapılıyor. Ondan sonra işte iyi örneklerle gidiliyor. Ya da study vistlere gidiliyor (APS3).

Biz projenin önerisine hazırladığımızın da daha kabul öncesi shortlistteyken, işçi ve işverenlerin nelere ihtiyacı olabileceği ile ilgili bazı toplantılar yapmıştık. Kobilerle görüşmüştük, ondan sonra Teknokent ile görüşmüştük. Çeşitli paydaşlarla görüşmüştük. Proje sonrası yaptığımız SWOT öncesi aslında biz bir mini SWOT gibi bir şey yapıp onlardan işçi ve işverenlerin nelere ihtiyacı olabileceği ile ilgili belli bir fikir elde etmiştik. Daha sonra kendi tecrübelerimizle birleştirip biraz 'educated guess' yapıp, bu on dersi çokta çok da formal olmayan yöntemleri takip ederek belirledik. Yani educated guess ve ondan öncesinde yaptığımız kendi görüşmelerimiz var. Bakanlığın neler beklediğini biliyoruz. İşçi ve işverenlerin neler beklediğini biliyoruz. Bizim daha önceki tecrübelerimiz var. Onların üzerine hangi dersler yapılabilir? Şu anda geriye baktığımızda da hani yine dersleri seçecek olsak bu on dersin büyük bir kısmını yine ilk 10'a girebileceğini düşünüyorum (CT6).

Proje kapsamındaki dersler incelendiğinde aslında, hedef kitlenin bu derslere ihtiyaçları olduğuna inanabilirsiniz. Projeyi gözden geçiren herhangi birinin kendine uygun en az bir ders bulacağına inanıyorum. Bu da aslında projedeki ders analizinin iyi yapıldığının bir göstergesidir (SWT3).

Bir adamın bir ihtiyacı var bir şey ile ilgili, onun hangi program ile yapılabilceğini matchleme açısından iyi olmuştur. Adamın bir mesela bir şey yazma ya da poster geliştirme ihtiyacı var. Bunu yapabileceğimiz milyonlarca araç var yani hani abartmayayım binlerce araç vardır. Yani hani bunu en iyi, en düzgün ya da en ucuz yoldan hangisi ile yapabileceğimize yönelik bir eşleştirmede çok yardımcı olmuştur (CT1).

Öngörüler söz konusu oldu, öngörüler. Orda CT2'nin katkıları oldu. O biraz da gelecek 20 senede bu iş parlayacak, bu işe mutlaka değinmemiz lazım dedi, o bir ders haline dönüştürüldü. Ama mesela rapor sonucunda çıkmamıştı. Yani o anlamda katkısı oldu tabi ki saha araştırmasının da...biraz daha günümüz şartları ve öngörüler daha etkili oldu süreçte (PMT3).

Mesela kişisel gelişim derslerini falan çok öngörememiştik açıkçası. Ne yapacaklar ki falan filan diye. Ama baktık insanlardan bu tür talepler gelmiş. yani herkes açısından, herkesin perspektifinden göremiyorsun ki. O açıdan ben ihtiyaç sahiplerinin fikirlerini her ne kadar çok istenilen seviyede olmasa bile alınması bence önemli bir şey (CT2).

SWOT için enabling diyebiliriz mesela bu threatleri gidermek için anlaşmalar yapılması ya da paydaşlar bulunması çok ciddi bir şey. Biz mesela kendimiz olarak reklam yaparız ya da bir şey yaparız ondan sonra gerisi gelmeyebilir. Mesela diğer paydaşların diğer insanlara söylemesi, böyle bir şey var diye bilgileri yayması daha iyi bir şey. Bir de bunu bu şekilde, objektif olarak değerlendirebilmemiz iyi bir şey aslında. Mesela insan bir şey geliştirirken benim ürünüm en iyi, benim ürünüm diğerlerinden farklı diye bunun üstünde durur. Objektif olarak bunu değerlendirmek de güzel bir şey. Benim güçlü yanlarım bunlar, zayıf yanlarım bunlar, benim fırsatlarım bunlar ama göreceğim tehlikeler de bunlar diye bunları yapabilmek de bir proje açısından iyi bir şey (CT1).

Yönlendirme komitesinde de zaten toplanıyoruz işte çalışma makamı, faydalanıcı ve firma olarak zaten her ay toplanıyoruz. Bunu paydaşların da bizimle olduğunu görmek açısından belki... siz sürekli iç içesiniz PG veya işte ODTÜ olarak siz iç içesiniz ama sözleşme bakanlığı her zaman paydaşlarla bir araya gelemiyor, onların düşüncelerinin ne olduğunu göremiyor, belki bizim orada edineceğimiz bilgiler daha sonraki projelerde çok daha fazla işimize yarayacaktır. Ona göre planlamamızı yapacağız. O açıdan onlar da hem bizim için de kıymetli, sizin için de kıymetli olduğunu düşünüyorum (APS3).

...süreçte bir sürü MOOC tasarımı var ya da üniversitelerin yaptığı var. Private cooperationların yaptığı var. Nasıl yapacağız konusu zaten temel sorunuz. Gidip best practicelerin incelenmesi bu açıdan iyi. Sonuçta oradaki know how'ı aldığımız, kimler nasıl yapıyor, ne oluyor falan diye. Uygulayamasa da sonuçta gidip onu görmekte hani proje açısından fayda var sonuçta.. Farkındalığımız kesinlikle arttı. Hiç değilse o insanların nasıl yaptığını ve o sürecin nasıl çalıştığı hakkında bir bilgi aldınız yani hani. O süreçleri neler? neler itekliyor? O süreçleri neler o dinamikleri

neler etkiliyor ya da o insan ya da en şey mantığıyla en düzgün basit tasarımları nasıl o insanların bu bilgileri alıp geldiniz. Bizim geliştirici takım o kadar yetenekli olmasa da bize de faydası olmuştur yani (CT1).

İlk 10 ders aslında bu da bu projenin öncü grubu olarak belirlenmiş ve hani bazı şeylerin düzene konması, sürecin oturtulması için ilk ten ders denmiş. 100'ün 10' u denmiş ama ben bu ilk 10 dersin projenin gaz ve toz bulutundan başlangıç aşamasına geçiş için görev yaptığını düşünüyorum (QAT1).

İlk 10 derste bazı standartların oluşması ve bir kalite ekibi oluşturulması (SWT1).

...ondan sonra (ilk 10 dersten sonra) öğrendik, değiştirmeye başladık süreci. O yüzden ilk on ders kadar uzun, yoğun içeriklerdense daha küçük şeylere geçtik. Daha kısa kısa içeriklere geçtik. Konuları biraz daha özenleştirdik. Orada e-ticaret gibi kocaman bir konu vardı mesela. Biz şimdi sonraki derslerde daha ufak ufak işte sadece mesela Excel'de pivot tablolar gibi böyle minik minik şeylere geçtik. O bir değişti.. Ders başlığımızı da sadeleştirdik aslında. O kadar geniştense, daha darlara gitmek üretim açısından daha mantıklı olacaktı. Bir de bizim istediğimiz şeye de aslında daha uygun. Çünkü kısa istiyorduk. Kısa kısa olsun hap gibi olsun. Bir kere de ihtiyacı olan şeyi öğrensin gitsin kullanıcılar. Çünkü çalışanlar ve işverenler. Hedef kitlemize uygun olsun diye. Dolayısıyla konuyu genişletince içerik de çok uzuyor. İçerik uzayınca e öyle kısa gibi hap gibi olmuyor yani hani. Sarpa sarıyor biyerden sonra zaten. Şunu da mı anlatmak lazım, burayı da mı anlatalım, şunu atlamayalım falan derken.. devasa bir şey haline geliyor. O yüzden daha böyle kısa kısa minik minik şeyler haline getirmek yoluna gittik. Konular değişti o yüzden (CT5).

Mümkün olduğu kadar kısa az öz zaman ayırıp şey yapabilecek. Biraz tabi ODTÜ temelli olduğu için daha böyle ödev yap, işte dersin süresi 3 hafta falan (SWTDT1).

Bazı şeylerin nasıl yapılamayacağını, nasıl yapılmaması gerektiğini gördük. O açıdan önemli (CT2).

O kısımda (10 pdMOOC geliştirme aşamasında) da yine aslında şu an yaptığımız adımların biraz daha detaylı kısmı vardı. Detaylandırılmış hali vardı. Orada çıkan ürünler ürünler ile şimdi sonradan çıkan ürünleri karşılaştırdığımızda aslında çok büyük bir fark yok ama oradaki emek ve hem öğrenme açımız daha genişti. Öğrene öğrene sonrakilere daha kolay uyguladık. Daha kolay adapte olduk diğer derslere (CT3).

belki bir formal olarak bir öğretim tasarımı modeli kullanmadık ama en azından bu adımların, stagelerin paralel gitmesine yönelik bir metodoloji uygulanmış oldu. Yani sadece analizi yap bitir ondan sonra işte dizayna geç şeklinde değil de... Biz analiz yaparken bir yandan da tasarım ve geliştirmeye de başlamıştık. Onu yapmamış olsaydık mesela, belki daha büyük bir felaket olabilirdi. Süre kısıtından dolayı direktten döndük. Hani projeyi bitirme açısından. İyi ki başta öyle bir şey yapmışız. Biraz daha, böyle Mooc türü bir projenin, daha agile bir yaklaşımla yürütülmesinin gerekli olduğunu gösteriyor. Daha böyle çevik bir yaklaşım olması gerekiyor. Özellikle çok farklı alanlara yönelik, farklı hedef kitleye yönelik bir şey yapılacaksa öyle bir yaklaşımla; sistematik hani adım adım git, bir adımı bitir sonra öbür adıma geç yaklaşımı böyle dinamik projelerde çok çalışmadığının bir göstergesi (CT2).

Ham içerikte doğru bilgi çok önemli. Doğru bilgiyi veren.. Çünkü aslında doğru bilgi de dönem içinde değişebiliyor biliyorsunuz. Önceki yıllardaki bir bilgiyle siz ham içerik hazırladığınız zaman çok da kıymeti olmuyor, değeri olmuyor hakaten. Bi de insanlarımız çok okumayı belki araştırmayı sevmiyorlar ama. İçinden birtane bile çıksa, "aaa.. bakın bu bilgi hükmünü kaybetmiş, olmadı" dediği noktada mahvolursunuz. Çünkü eğitim böyle bişey yani. O yüzden çok değerli şeyler vardı. Hazırladıkları metinler olsun, işte yönlendirdikleri web siteleri vs. (SWTDT3).

bazı kişiler (SMEs) isinde çok iyiydi ve süreci hazırladılan kısımda bu kişiler (SWT2).

Ya ben tamamen hayal ederek böyle, benim kobilerle tecrübem de var. Ama hiç (tecrübesi) olmayan bir adamın bunu yapması o kadar zor ki. Çünkü bambaşka bir dünyada yaşıyor yani. Şimdi teknokent de ki bir adamın yazılımcının yazılım dersi hazırladığını düşünsenize yani. Bunu kobiler için hazırlaması imkansız adamın yani. Ben bunu yaparken şanslıydım çünkü benim zaten istenilen özelliklere sahiptim ama bunu başka birisi yapacak olsa hem eğitim geçmiş olması gerekiyor hem kobilerle ilişkisi olması gerekiyor hem türk toplumunu bence bilmesi gerekiyor. Yani eğitim geçmişinden geçtim de yurdum insanını tanıyor olması lazım. Çünkü yani ODTÜ'de... Bu teknokent de ki birisinin yapması doğru olmaz. ODTÜ den mezun olmuş teknokent de çalışıyor. İşte öğleyin starbucks'a geliyor falan. Çok kopuk tamam mı (SME1).

İçerik açısından yani bazı konu uzmanlarıyla birazcık know-how yüzünden vs. hani onu tanımlamak çok da kolay değil ama çok kolay çalıştığımız insanlar oldu. Çok güzel bizi anlayan eee çabuk response veren hani Türk usulü son dakikaya bırakmayan ama bu çok şey kişiye bağlı bir şey (QA1).

Yani mümkün olduğu kadar basit, formülsüz yani şimdi Hacettepe Üniversitesine anlatacak olsam bu dersi çok daha farklı anlatırdım yani. Ama burada öyle anlatmadım yani. Hiç böyle bir matematiksel hiçbir şey yok. Halbuki fotoğrafçılık dediğiniz şey bayağı bildiğiniz fizik aslında. Hiç öyle birşey yok. Herşey bizim günlük hayattaki işte ampül

böyledir hani açarsın dim olur bilmem ne falan da benzeştirmeye çalışıyor herşeyi. Animasyonlar ona göre böyle (Gülme) gayet basit şey animasyonları işte bir tane güçten bahsederken böyle bir power şeyi dönüyor falan yani çok sembolik sembolik şeyler ama hani seyretcek adamın tamamen hiç bir şey bilmeyen bir adama anlatır gibi (SME1).

Sonuçta dersleri sadece bir programcı ya da aşçı almayacaktı, bu açıdan baktığımızda dersler konular açısından temel kısımlara yöneldi ve herkesin her konu hakkında bilgi sahibi olabileceği seviyede hazırlandı (SWT2).

... dersin yapısı da değişti. İşte biraz daha kısaldı vs. içeriklerini toparladık. Uzmanlar değişti vs gibi şeylerde rahatlatıldı ama hani süreci rahatlatıldı, ferahlatıldı diyeyim (CT5).

Bence ders (içerik) oluşturma sürecinde sürekli geri bildirim almak çalışan bir sistem. Bu işte deneyimli ya da profesyonel olan biri ile görüşmek kesinlikle süreci olumlu yönde etkiliyor (SWT3).

aynı içerikte bir kişinin tek başına çalışması belirli bir körlüğe neden oluyor. O körlüğün üstesinden gelmek için o paslaşmalar önemliydi. Bu kolaylaştırıcı bir unsurdur (QA1).

Bu derslerin en büyük inovasyonu bir ölçme değerlendirme uzmanının bütün soruların üzerinden geçmesi... Mesela ben çok büyük endişe duyuyordum (PMT2).

Öğretim tasarımı haline getirmek için, bir kitabı diyeyim, kitabı uzaktan eğitim materyali haline getirebilmek için, en önemli unsur senaryo. Üretimi etkiliyor, sonucu etkiliyor (QAT3).

E-öğrenmeye uygun bir içerik sunulursa, (işler) senaryoda kolaylaşıyor (QAT2).

Drone ile ilgili kim vardır falan diye etrafımdakilere şey yapınca drone dersi veren birini bulduk. Ve biz o kişiyle emin olun 4 defa toplantı yaptık. Ben kişisel olarak değil. Ekibimle beraber. 4 defa toplantı yaptık ve biz ham içerik metnini onunla beraber gözden geçirdik. Bir takım mevzuatların değişmesi gerektiğini yani içerikte değişmesi gerektiğini şey yaptık.. Farkettik. Ondan sonra geri döndük. Ham içeriğin sahibine bunları anlattık. O bize hak verdi. Ama biz o araştırmayı yapmasaydık belki de yanlış bir şekilde ham içeriğin üzerinde üretim yapmış olacaktık, storyboardla beraber (SWTDT3).

(Storyboard yazan kişinin) "Unity" ile neler yapılabileceğini bilmesi. ve dersin de baştan söylenmesi lazım hani bu ders işte atıyorum şu Framework ile yapılacak, şöyle bi SCORM "paket çıkacak. Bunu bilmek senaryoda bile sizi etkin kılıyor (QAT3).

Burada çok böyle şeyler yok. Kurallar yok. İşte, "sen şu örneği verirsen daha iyi olur", ya da "bu konuda şu örneği verirsen daha iyi olur" değil. Evet orada bir konu üzerinde bir örnek verecek ama örneğin en iyi olması için biraz ses lazım gerçekten. Farklı sesler lazım (SWT_DT3)

Ama çok büyük bi kitleye hitap edeceğiniz için, kendi içinizde de küçük grup olsanız da çeşitlilik olduğu için farklı gözlerden baktırmak lazım...Kesinlikle baktırmak. Yoksa hazırlayan kişinin dünyasında gömülü kalıyorsunuz. Hakkaten gömülü kalıyorsunuz. Ham içeriği hazırlayan kişinin de dünyasında aslında gömülü kalmış oluyorsunuz (PMT3).

derslerin öğretim tasarımları açısından ve ölçme açısından çok kuvvetli olduğunu söyleyebiliriz. Öğretim tasarım ilkeleri adı altında ve başlığında aldığımız her şeyi bu derslere baktığımız zaman uyguluyor (PMT2).

Çok kötü dersler ya da en iyi örneklerden çok uzak dersler oldu mu? Değil ! Bence en iyi örnekleri sadece hani dersi nasıl geliştirildiği değil, aynı zamanda dersin içeriği de belirler yani youtube da girip de bakıldığında mesela, belki youtube da en çok izlenen video baskı excel formülünün nasıl yapıldığını anlatan video olabilir. Altyazısı Türkçedir. Herkes ona ihtiyaç duyuyordur, o içerik önemlidir. Bu dersler için de hani derslerin başarısını hani tasarımsal açıdan nasıl geliştirildi, ne kadar çekici olduğu bi etkendir ama, içeriğin de hedef kitle için ne kadar önemli olduğu da bi etkendir (APSI).

onlara (hedef kitleye) böyle çok yapısalcı bir yaklaşımla yaklaşmak doğru olmazdı da zaten. Aranmazdı da, işte hadi bakalım sen kendin işte zaten içsel motivasyonum var bunu öğrenmek için falan gazı da o kitle için olmazdı yani sonuçta. O tarz bir yaklaşımımız sıkardı. Bu kadar ilgi görmezdi Bir amaca yönelik olması güzel (QAT4).

çok profesyonel gösteriyor dersi yani. Böyle birisi gayet düzgün bir şekilde dersi anlatıyor yani. Benim anlattığım gibi anlatmıyor (DT1).

Courserada, mesela hocanın kendisinin anlatımını görmek çok zordur. Özellikle programlama derslerinde. Ekran gelir, hocanın sesi yine arkadan gelecek şekilde tek tek yazmaya başlar. Çünkü önceden transcribe edilmiştir

konuşacağı şeyler. Hani u bizde de öyle aslında ... Raw demek transcribe edilmiş demek. Yani hani hocayı sadece şeyde görürsünüz bölüm biter u anlatlık u şimdi isterseniz şuna geçelim der. Sonra hemen yine ekran kararır. Ekran da hoca yazdıkça yanlış yaptığında siler ya da o videoda artık edit edilmiştir, görmeyiz. Hani u ya da işte bir şeyle karşılaştığında görüntü gider gelir. Ha evet çözdüm, cevabı da şuymuş der. Çünkü u şey anlatmanın tutorial anlatmanın yolu budur (CT3).

Mesela problem based learninge biraz kaydık. Genelde öyleydi çünkü bizimkiler de genelde öyle çünkü bir sorunu çözmeye, yardım etmeye yönelik, hani kobilerin eksiklerini giderme: Kobiler kafalarında bir soru olduğunda oradan bir çözüm gelip herhangi bir konuda şey... Tabiki normalde kendini geliştirmek için de gelebilir. Hani başta problem çözmeye ile başlayıp sonra procedural bir learning ile devam ediyoruz. Kafadaki soruyu cevaplamak maksat (CT3).

Mesela bazen o ifadelerde "yaa burasını çok uzun tutmuşsunuz. Bütün konuya baktığınızda bu bölüm çok fazla" dedik. Eğitim teknolojilerimiz orada çok güzel iş çıkarttılar. Hani, bütüne bakıp bu konu ne kadar önemli? Bu konuya bu kadar sayfalar dolusu yazı yazılmış ama biz bunu biraz özetleyelim mi? Veya işte şuradaki soru çok şey gelmedi, uygun gelmedi. Soruları da ham içerik hazırlayan kişiden almıştık biz çünkü. Napabiliriz, başka sorabilir miyiz? Veya işte soruların hepsi çoktan seçmeli ama biraz daha böyle doğru/yanlış şeklinde sorular da koysak mı, ne dersiniz gibi.. Böyle biraz yumuşak şeylerle de yönlendirdik aslında (SWT_PT_1).

O yüzden hani biraz informative var, biraz procedural. Yani yönlendirici bir şekilde ilerleyişler felan, hani var, e günümüzde de o kadar ama tabi dediğim gibi youtube videosu gibi de değildi hani. Öyle olmaması da güzel. Bir amaca yönelik olması güzel (QAT4).

biz prosedür öğreteceğiz burada prosedürel bir öğrenme hayata geçirmemiz lazım diyorduk. Zaten o hep kafamızda olan bir şeydi. İnsanlara on the job training türünde gidip orada işine katkısı olabilecek bize hani kavram anlatacak değil bir şeyi nasıl yapacağını anlatacak çözüme ihtiyacımız var. Yani zaten onu baştan koymuştuk şey olarak yöntem olarak (CT2).

Hekimden sorma çekenden sor demişler ya onun gibi. Burada da onun için yani sürekli pratik istemeye çalıştık. Hayatını kolaylaştıracak, hayatına uygulayacakları bir şeyler olsun. Onun için baştan beri vurgumuz o yönde oldu (CT2).

Ne sadece uzman videolarından ne de sadece animasyonlar oluşuyor. Videolar yerine göre konumlandırılmış ve kullanıcıyı sıkmayan bir anlatım var. Arada verilen etkileşimler de eğitimi daha dinamik tutuyor (SWT4).

işte böyle üç boyutlu şeyler hazırladım. Böyle masanın etrafında kamera dönüyor. Her tarafından gösteriyor neyi nereye koyacaksınız bilmem ne falan (SME_SWT_PT_1).

... mesela arkadaşlar çok hızlı bir şekilde, öyle bir oyun ortamı şey yaptılar. Mesela, karşıdan karşıya geçmesi gerekiyor. Ama kaldırım uygun değil örneğin. Orada diyor ki kaldırım yüksekliği bak uygun değil. Senin kaldırım yüksekliğini ayarlamam lazım. Burada aslında engelli bireye demiyor onu. Burada iş yeri sahibine diyor ya da ilgililere şey yapıyor, sesleniyor ama çok böyle nazik, kibar bir şekilde şey yapıyor, sesleniyor. Yoksa ilerleyemiyorsunuz. Orada diyorsunuz ki evet bu böyle olmalı. Kavram da yerleşiyor o şekilde (SWT_PT_1).

Süreci (storyboard) kolaylaştıran en önemli unsur geri bildirimler. Ürün son kullanıcıya ulaşmadan önce kalite ve kontrol ekiplerinden sürekli olarak geri bildirim aldığından süreç olumlu yönden etkileniyor. Dolayısıyla ders oluşturmak da kolaylaşıyor (SWT3).

Senaryo açısından ekibin kontrolü üretimden önce gözden geçirilen bir durumu yakalamak için ya da son kullanıcıya yansımaları istemediğimiz bir şeyi fark etmek için kesinlikle çok önemli. Kontrol ekibinin geri bildirimi sayesinde üretimden önceki denetleme ve düzenleme daha sağlıklı bir şekilde ilerliyor (SWT3).

O şey, şu an baktığım mesela hani storyboard nasıl okunmalı diye bir doküman var driveda. O sarı yeşil turuncu şeyler... Mesela oradaki o sistemi anlamak açısından çok faydalı oldu. Mesela hani ufak bir şey de olsa hani insanı destekleyici bir şey. Mesela orda olmasaydı ben gidip debelenebilirdim, hani başkasına sorabilirdim. Ama bana orada yardım etti (CT1).

...işte orada da çift bakış işe yarıyor. Tabi ön yargı olmadan yapılması lazım. ben size karşı ya da OCU ayağına karşı herhangi bir ön yargı yaşamadım. Zaten hani hiçbir aşamada da bir iş yaparken, bi hatamın bulunduğu kendime, hani ne kendime güvenim daralır, ne karşı tarafa başka bir bakış açısıyla bakarım. Böyle bir sinerji yaratıldığında, ki bizde yaratıldığını düşünüyorum, bu projede... karşılıklı hataları bulmak, ya da birinin görmediği şeyi başkasının görmesi de sıkıntı yaratmaz. Ama tabi bu projeler için ciddi bir problemdir yani (QAT4).

İncelenen derslere, konu olarak hakimiyet (SWT_PT_2).

Bence ders oluşturma sürecinde sürekli (uzmanlardan) geri bildirim almak çalışan bir sistem. Bu işte deneyimli ya da profesyonel olan biri ile görüşmek kesinlikle süreci olumlu yönde etkiliyor (SWT3).

bütünsel olarak yapıda odtünün böte bölümünün bu işin içinde olması bu işin duayenlerinin bu işi kontrol ediyor olması ve o süreci hem tanımlarken hemde işletirken siz farkında değilsiniz ama bütün o tasarımsal ilkeleri yansıtıyorsunuz yani bütün tasarımsal yani verdiğiniz dönütlerin hiçbir şımarık yada saçma sapan dönütler değil yani diyorsun ki bu daha, bu böyle olsa daha iyi olur belki bunu yumuşak söylüyorsun belki ama o bir hani dersi anlatmak için ve bir tasarımı gerçekleştirmek için gerekli birşey o yüzden öğretim tasarımları açısından ve ölçme açısından çok kuvvetli olduğunu söyleyebiliriz (PMT2).

...şöyle, biz de storyboardu aldığımızda üretim ekibimize verdiğimizde şunu yapıyoruz. Storyboardun içinde seslendirme metinleri olduğu için, ses bilgileri geldi, gönderiyoruz, studyoda bunlar birer dosya olarak geliyor. Storyboardın içindeki görselleri, işte, bir takım biliyorsunuz, kütüphaneler var. O kütüphanelerden indiriyoruz, alıyoruz, kullanıyoruz. Onların da bir hazırlığı oluyor. Ondan sonra aslında üretim ekibi yapıyor? Bir kolaj çalışması yapıyor. O çalışmada da şey çok önemli. İşte, Animasyonlar çok iyi, kurguları tarif edildiyse ona göre animasyonlar çıkıyor ortaya (SWT_PT_1).

O kadar çok kişi çalışmıştır ki, seslendirme yönetmeni vardır, görüntü yönetmeni vardır falan yönetmeni filan yönetmeni vardır. Aslında biz de öyle bişey çıkartıyoruz ortaya. Onun için film yapıyor gibiyiz, oradaki sesteki cümleler vs. şonlar bunlar.. ee.. hepsi gözden geçirilmeli ve hepsi storyboardun olmalı ki gözden geçirilmeli. Üretim gerçekten fabrikasyon kısmı oluyor. Üretimde yapıyorsunuz siz, kolaj çalışması yapıyorsunuz. O parçalar, bu parçalar işte stüdyodan gelen sesler, kütüphaneden aldığımız görseller.. onları oluşturduğunuz animasyonlar vs. ondan sonra da derli toplu (PMT3).

Aslında her defasında her yaptığımız iş bi sonraki işi besliyor dolayısıyla o işin düzgün, doğru, yerinde, anlaşılır olması çok çok önemli. Yoksa gittikçe kanayan yaranız büyüyor. Öyle söyleyeyim. Küçük bişey büyüyor büyüyor büyüyor en sonunda dağ gibi bir problemle karşılaşılıyor oluyorsunuz. Önce, hep adımları şey yapmak lazım.. zaten bu işin doğasında şeyler çok belli. Aşamalar çok belli. Hani, bir ham içerik hazırlama kısmı var, iki storyboard kısmı var, üç üretim kısmı var. Belki bir soru, işte pekiştirme soruları vs kısmını da onun bi alt şeyi gibi düşünebilirsiniz....herbirini... evet... herbirini kendi içinde tutarlı, onayları verilmiş şekilde bir sonraki aşamaya geçerseniz çok daha şey oluyor. Düzgün gidebiliyor hakaten. Ve sonuçlar da daha şey, iyi çıkıyor (SWTDT3).

Üretimin yapıldığı teknolojiye hâkimiyet (SWT1).

Üretim ekibi tamamen, şey diye düşünün: rutine girmiş bir iş zinciri var. İşçi gibi... veriyorsunuz takır takır, o hızlı bir şekilde üretmeye çalışıyor diye düşünmek lazım. Ama biz de geride çok kaliteli üretim ekipleri var. Gerçekten, geri dönüşlerde bulunuyorlar. bu görsel burası için çok uygun değil. Ya da, bu cümlede düşüklükler var vs (SWTDT3).

Mesela o demin dediğim ham içerikten on kez belki giden ders sonrasında (senaryoda) çok kolay geçti (ders üretim onayından). Çünkü o, orada (senaryoda) pişti o yani (QAT2).

SME nin üretimi görmesi çok büyük fayda sağlar, o zaman o da dersi nasıl anlatacağını bilerek, ona göre bir içerik sunabilir (QAT3).

Yazar ile görüşmenin ya da en azından konu hakkında yeterli teknik bilgiyi almanın ders oluşturma(üretme) sürecinde kritik bir nokta olduğuna inanıyorum (SWT3).

Yani şöyle hem içerik uzmanı yazıyor senaryo yazarına konuyu gönderiyor. Öyle senaryo yazarları var ki konuyu bilmiyor adam senarist sadece böyle olmamalı eğer o konuyu bilmiyorsa ve çok iyi bir senaryo yazarı ise, hem içerik yazarıyla birebir çalışmalı. Bizim son zamanlarda iyileştirmeye yönelik yaptığımız hani ben geldikten sonra konu uzmanlarına şunu söyledim senaryo ve üretim aşamasında size ihtiyacımız olacak. Bu konuda desteğiniz ders üretilene kadar devam edecek dedik (PMT2).

Olmaması gereken olmalı, ondan sonra, sonraki süreç başlamalı. Sonraki süreçteki ilgililere bitmiş halde her şey teslim edilmeli. O zaman ne oluyor sorunuza gelirsek; gözden geçirmeniz çok kolay oluyor. Neden gözden geçirmeniz çok kolay oluyor; aslında siz o süreci yaşarken ne çıkacağı geri planda oluşuyor. Hayalinizde var aslında o. Napiyorsunuz; storyboardu açıyorsunuz, bizim test ekibimiz öyle çalışıyor aslında. Storyboardu açıyoruz, üretim ekibinin yaptığı şeylere bakıyoruz, storyboarddaki birebir üretilmiş mi? bide şu gözle bakıyoruz evet, olabilir. Storyboardda böyle denilmiş ama ya burayı aslında şöyle yapsak iyi olur muydu şeklinde notlar çıkartıyoruz (DT3).

Portal açısından ekip aslında bir son kullanıcı gibi test yaptığından olası problemleri önceden tespit edebiliyor, bunların çözümü de son kullanıcıya ulaşmadan hallediliyor. Dolayısıyla süreç de olumlu yönde etkileniyor. Ayrıca son kullanıcıya ulaşmadan dersin içeriğinin kontrol edilmesi süreci de olumlu yönde etkiliyor (SWT3).

Ders açısından tüm sürecin kontrolü çok önemli çünkü aslında temel olarak bir ekip sürecin bir noktası ile karşılaşırken kontrol ekibi bir dersin tüm sürecini gözlemleme şansına sahip, gerekli düzenleme ve desteği de sağladıklarından süreç olumlu yönde etkileniyor (DT3).

Dersin üretime kadar olan sürecin kontrol ekibi tarafından kontrol edilmesi tabiki süreci kolaylaştırıyor (SWT3).

Ondan sonra bunu eğer biz son kullanıcıya kendimiz teslim edeceksek doğrudan son kullanıcıyla şey yapıyoruz, değerlendiriyoruz. Böyle de şeylerimiz var, notlarımız var. ne dersiniz diyoruz. Çünkü onun da onayı önemli (DT3)

1. İlk revizyon sürecinden sonra çıkan ürüne çok zorunlu olan ve bariz hatalara tekrar revizyon verilecektir. 2. Yorumlar E-Learning Companyya ulaştığında, uygulanabilir ve uygulanamaz olanlar en kısa zamanda belirlenip CT'ye bildirilmeli (Course Production Planning Workshop).

Orada gerçi firmanın da şöyle bir olumlu yaklaşımı vardı. Eline alıp listeyi 100 tane madde varsa, "revision" varsa, birinciden başlayıp, ikinci, üçüncü... Otuzuncu da "conflict" yakaladım gidiyim bir sorayım felan yapmadı, firma eline alıp o da kaliteli bi yönetim izleyip, tamamını kontrol edip, bi "conflict" yakaladığında, ona dönüp, geri sorup hepsini "OK" e bağladıktan sonra, "biz bunları yapabiliriz, bunları yapamayız" ı söyledikten sonra yapmaya başladı. O zaman tabi 3 gün sonra bütün dedikleri yapılmıştı (QAT4).

Teknik özellikler açısından CT ekibinin kendisi biliyor konuyu. Yani CT ekibinin kendi know-how ı var. Dolayısıyla o işini kolaylaştırdı bence. Moodle biliyor, içerik biliyor CT ekibi. Senaryo yazmış bir ekip. Dolayısıyla onların deneyimleri bence kolaylaştırdı (QAT1).

Dersleri kontrol eden ekibin (CT) bu süreçte olumlu bir etkisi olduğuna canı gönülden katılıyorum. Ekip genel olarak tasarım kurallarına, kullanıcı deneyimlerine ve erişilebilirliğe vb. konulara dikkat ediyor. Onlardan gelen geri bildirimler sayesinde bizim dokümanlarımız da iyileşiyor ve daha iyi bir noktaya ulaşıyor (SWT3).

iyi bir takım lideri, nitelikli elemanlar ve planlı bir proje süreci (SWT2).

Bu proje için, süresi, bütçesi ve tamamlanması gereken ders sayısı düşünüldüğünde, "innovative yöntemi" üretim süreçlerinde yakaladığı söylenebilir. İlk 10 dersin geliştirilme süresine bakıldığında, kalan dersler için üretim ekibi birçok kez kendini yeni istek ve beklentilere ayarlayabilmiş ve projeyi tamamlamıştır (SWT1).

Action Item: Production Planı güncellenecek; öncelikle ham içeriklerin tarihleri güncellenecek daha sonrasında E-Learning Company üretim tarafındaki tarihleri güncelleyecek ve tüm tarafların mutabık kalacağı şekilde Production Plan revize edildi.

Tabi yani iyi bir networkün varsa oradan oradan gidip çözüm sunabiliyorsun. Ya da kimin çözüm bulabileceğini aşağı yukarı bilebiliyorsun (CT2).

Yani karşıma alıp dokümanı baktım, tarafsız bir gözle, ama gerçekten yeniden seslendirme gerekiyor mu diye sordum....., gerçekten gerekmediğini düşündüğüm an sonuna kadar savaşıp, karşımda "OCU" da olsa Eee bunu tekrar yeniden seslendirilmeyeceğini söyledim. Ama tam tersi, yeşil perde çekimi, çok yanlış bir hata var, yeniden çekim yapılması gerekiyor. O hata da öyle bir telafüz var ki kodu yanlış anlatacak tarzda, çok küçük bir kısım, ama kodu o küçük kısım, hatalı verecek. Burada da firma tarafında .." ya da HER kimse.. Bunun yeniden çekimi yapılacağı konusunda bastırdım. Eeee bu tarafsız durumum öyle algılanmış olacak ki hem "CT" dan hem de firmalardan, tüm firmalardan bahsediyorum, istisnasız. Ben ne dediysem, şu saniyeye kadar, söylediğim şeyi, yapılmayan hiçbir madde olmadı (QAT3).

Dersler için düşünürsek, kalite ekibinin olması rahatlatan birşey. Yani kısmen en azından, biraz daha rahatlatıyor. Onlar da bakıyor sonuçta diye (CT5).

Biliyorsun öğretmenlik ayrı bir kavram, yani bilmekle ilgili değil anlatabilmekle de ilgili. Eee ben örneğin programlama ya da benzeri derslerde içeriğe çok müdahale ettiğimi de biliyorum. Gayri ihtiyari mesleğim itibarıyla, "bu örnek anlatılır, buraya şu örnek konulmalı. Atıyorum işte fonksiyon tanımlarken, fonksiyonu taşıyan işçiye

benzetiriz, onu sürekli çağırıp iş yaptırırız. Böyle bir örneği ben kendi dersimde de anlatıyordum, buraya koyayım filan gibi düşüncelere kapılıyorduk. O da zaten hep öğretim teknoloğunun en önemli özelliklerinden birisi (QAT3).

Belirlenmiş bazı standartlar, olası durumlarda ilgili ekran için karar verme sürecini kısaltması (SWT1).

Kendi adımıza söyleyeyim: şu anki en son geldiğimiz aşama bence gayet güzel bir aşama, tüm prosedürleri, dediğim gibi, baştan net bir şekilde planlayıp, belirledikten sonra o aşamaya gelene kadar kaybettiğimiz süreyi kaybetmezdik (QAT4).

Nispeten çok daha böyle beyefendi bir şekilde, hani takıldığımız yerde incitmeden, rahatsız edici bir şekilde konuşmadan, ya bunu böyle yapmışsın ama bu böyle olmaz tarzı. ..Buna dikkat edebilirsiniz seviniriz falan gibisinden. O hatayı ikinci de, üçüncü defa da yapmış olabiliriz çünkü çok karmaşık bir ortam. Onda bile sabırlarını kaybetmedi bu bizim için çok önemli bir şey (SMET2).

..iletişim problemi bence bunu hep söylüyorum.. daha önceki başka projelerimle karşılaştırdığıma göre yoktu.. yani.. ya da şöyle..tabi ki yoktu diyemeyiz ama minimumdaydı.. diğer projelerle karşılaştırdığımızda.. çünkü hani iletişim problemi iletişim kuramamak e ve farklı şeyleri anlatmaya ima etmek ama burda iki tarafta beklentilerini ve ne olduğunu söylüyor. Ee ve en sonunda biraz geç de olsa bir orta yol bulunuyor. diğer projelerimizde hiç bulunmayan .. daha ee yapısal olarak daha basit olmasına rağmen.. çok daha büyük sıkıntılar ve gerçek iletişim problemlerinin olduğu projelerimiz olduğu için..burda ben diğer projelerle karşılaştırarak gene söylüyorum..ciddi bir iletişim problemi olduğunu ben düşünüyorum (APS1).

grup içinde kendi iletişimimiz ve sonra karşı tarafla da iletişimimiz daha sağlıklı olabilir, hani kolaylaştırıyor. Önce bizim aramızdaki iletişim. Çünkü hani oraya gittiğimizde hani daha sıkı duruyoruz.Çünkü hani biz takım olarak gidiyoruz oraya çünkü onlar daha profesyonel bir takım hani (CT1).

.. hani aynı dili konuştuğumuz birlikte aynı bakış açısıyla bakabildiğimiz bir ekiple çalıştık, o kolaylaştırıcıydı (QAT1).

Benzer terminolojide konuşabildik (SWT1).

Toplantılar daha etkili, hani teknik anlamda bence etkili olduğunu düşünüyorum (APS1).

Yüzyüze, aynı noktaya bakarak alınan kararlar proje için en doğru ve sürdürülebilir kararlardır (SWT1).

Yazı dilinde de bazı şeyler farklı algılanabiliyor. O aradaki iletişimi de koparmamak, karşılıklı konuşmakta da fayda oluyor (QAT4).

O bakımdan hani bilen insanların, daha teknik kısımları bilen insanların olması gerçekten benim için avantajdı. Evet, kendi aramızdaki bu iletişim, işbirliği, istediğimiz zaman soru sorabilmemiz (CT7).

Proje yönetimi açısından bu süreci kolaylaştıran unsur: ekiplerin entegre halde çalışıyor olması. Örneğin ilk aşamada kontrole gelen bir ders daha sonra kalite ekibi ile görüşülüp düzenleniyor ve daha sonra üretimden sonraki kontrolünde de ekiple görüşülüp yeniden düzenleniyor. Ekiplerin bağımsız çalışması süreci uzatır ve zorlaştırır (SWT3).

Zor proje süreçlerini, projenin kobiler için eğitim amacını düşünüp motive olarak atlatabilmiş olmak (SWT1).

KOBİ olarak, pek çok yenilikçi konuda erişimi kolay ve yüksek kalitede hazırlanmış eğitimlere üstelik ücretsiz ulaşabilmeyi sağlayan bu projeyi çok önemli bir açığı kapatacak bir gelişme olarak değerlendiriyorum. Seminer süresince sunumlardan çok faydalandım. Giyilebilir teknoloji, sosyal medyanın işimizde kullanımı gibi güncel, zihin açıcı ve KOBİ'lerin farklılığını sağlayacak, performansını geliştirecek eğitim modülleri çok ilgimi çekti. Kısa sürede hazırlanacak 100 eğitim programının her biri bir çok KOBİ'nin başvuracağını ve yararlanacağını düşündüğüm önemli bir kaynak.... Bu projeyi hazırlayan ve düzenlenen seminere davet eden ekibe çok teşekkür ederim. (KOBİ Employer /OSTİM).

Ya şimdi ben de bir projenin başında bulundum. Yani, o sizin çocuğunuz gibi çok üzüliyorsunuz (SME_SWT_PT_2).

Bizim buradaki ekibin bir olması, kararlı olması (önemliydi) (CT7).

CT lidernin olması öncelikle kolaylaştırıcı bir şey. O açıdan da biraz rahattık, karşı taraf için de şey olmuş olabilir, hani onlar da çok şey öğrendik diyorlar. Onlar açısından da bence iyi bir şey olmuş olabilir (CT4).

CT lideri olmasaydı takım dağılabilirdi aslında (CT6).

ODTÜ bence ordaki en önemli isim yani, olabilir yani. Ama şuanda bence ODTÜ hani ODTÜ çatısında olması bunun zaten başka birşeye gerek duyulmuyor bence yani. Öyle bir isim yani isim öne geçmiyor zaten. ODTÜ öne geçiyor. Bunun için yeterince motivasyonları vardır adamların zaten (SME1).

Başta işçi ve işverenler olmak üzere herkese açık olan ve ücretsiz olarak sağlanacak e-dersleri bitiren katılımcılara ODTÜ imzalı katılım sertifikası sağlanacaktır (Bilgeş Booklet).

Şimdi öncelikle bizim bu projenin en başından da konuştuğumuz gibi öncelikle Türkiyede sonra da sizin tecrübenizle bizim duyduğumuz dünyada örneği olmayan bir proje. Özellikle Türkiye'de de bu tarz derslerin sıfırdan üretilmesi işte insanlarla buluşturulması gibi bazı projeler kapsamında 5 ders 10 ders bildiğim kadarıyla oldu bizim yaptıklarımızda oldu ama bu kadar büyük bir hacimde ilk defa bir örnekle karşılaşıyoruz ve içerik olarak aslında hedef kitlesi, konusu, konuları, derslerin konuları tamamen geleceğin teknolojilerine uygun insanlara, firmalara inanılmaz bir katkı sağlamayı hedefleyen çok özel bir proje (PMT3).

Planlama kesinlikle çok önemli. Hep bir B planı vardır planmada, bizim o yoktu mesela. Hani derslerimiz... Ya ben şey hatırlıyorum; son 6 aya falan girdik daha ismi belli olmayan derslerimiz vardı (QAT2).

Şimdi hedef kitlenin daha önce online öğrenmeyle ilişkisi de çok önemli. Yani bu aslında bu ihtiyacı bu ilişki belirleyecek. Bu adamların bu online ortamlarla olan ilişkisi biz bilmiyoruz henüz. Bu projeden sonra bileceğiz. Dolayısıyla o zaman belki yeni şeyler yapacağız, düzenlemeler yapacağız ya da bazı şeyleri tamamen değiştireceğiz ki o ihtiyaca aslında cevap vermiş olabileceğiz (QAT1).

..genel bişey çıkarmak da zor. Anca bu hedef kitle için böyle yaptık. İşte hani farklı olabilir miydi falan diye konuşulabilir ama genelleme yapmak falan çok zor geliyor yani. Çünkü biz çok hoşlanmıyoruz mesela işte şey dedim ya bu yeni başlayan arkadaş baktı diye. Lise mezunu, meslek lisesi mezunu hatta. Memur olarak başladı işte... kobide de lise mezunu bir çalışan olmasını bekliyoruz aslında. Muhasebe mezunuydu herhalde. 3D printer'lar... dersimiz var ilk 10 derste üstelik... o dersi biz yerin dibine soktuk hatırlarsan yani. "işte hiçbirşey göstermiyoduk, printer görmüyoruz da bilmem ne falan filan" diye, gayet beğendi.. Yanibizim bakış açımızla, onun bakış açısı o kadar farklı ki.. dolayısıyla bilmiyorum uygulandıkça görmek lazım belki de. Ona göre yani kullanıldıkça anlicaz sanırım onu. Şimdi çünkü sadece hala tahmin "(CT5).

Bunlar yapılamıyor falan Türkiye'de falan dediğimiz şeyler ama hiçbir yerden işte ne bileyim ben giyilebilir teknoloji falan gibi bir ders çıkmadı. Böyle de bir ders yapılsa iyi olur falan diyen olmadı. Çünkü adam öyle bir şeyin olduğunu bilmiyor. Bilmediği bir şey hakkında da konuşmasını beklememiz de biraz garip geldi (CT4).

OSB'lere gitseler bile, OSB'lerin yönetimiyle konuşsalar da, sadece yönetim katıyla konuştular. Yönetim katından çıkıp hiçbir zaman gerçek çalışanlarla, gerçek projeyi kullanacak kişilere ulaşmadılar. Onlarla herhangi bir beşeri muhabbetleri olmadı (CT6).

Ağustos ayı sonuna kadar 10-15 yeni ders ismi belirlemesi (28.09. 2016 PM presentation).

Proje yapanlarla kobiler karşı karşıya geldi. Projeyi yapanlarla eğitimler mecburen karşı karşıya geliyorlar ama kobilerle içeriği sağlayanlar hiç bir araya gelmediler (SME1).

Yani biz hani bu işin içinde olanız, öğretim tasarımı sürecinde içinde olan insanlar olarak, biz de bunu daha iyi nasıl öğretiriz çok iyi bilmiyoruz ki hani o yüzden ben şimdi size bunu öneri olarak yazıyorum ama bunu bir toplantıda söylemiştin... hani ben size bunu söylüyorum ama bilmiyorum ki öyle daha mı iyi öğrenirler..bi en azından deneyelim diyorum.. hani onu bile göremiyoruz...Yani değişkenler sadece konular ne olmalı, şöyle olsa alır mısınız, şu konular ilginizi çekiyor mudan öte hani politik, ekonomik işte adamın günlük hayatıyla ilgili eee işte ülkenin genel durumu ile ilgili vesaire çok fazla değişken var. Bu projedeki bu derslerin kullanılmasıyla ilgili. Dolayısıyla o değişkenleri ancak daha sonraki aşamalarda görebileceğiz (QAT1).

En iyi örneklerin incelenmesi de bir yandan, bir anlamda fikir verdi ama en iyi örneklerin incelenmesinin, mevcut ders geliştirme sürecine katkısı sınırlı oldu (APS1).

İlk 10 dersin bitiminde bir kutlama yapılması kararlaştırıldı (Course Development Meeting).

İlk başta bir ürünün %100 tam mükemmel olduktan sonra müşteriye çıkmasını beklersek eğer çok hızlı: çok zaman kaybederiz bu ilk sürümü, whatsapp çıkıyor adam ayda bir güncelleme gönderiyor ayda bir iyileştirme gönderiyor bu sistemi kurgularken bunu düşünüp, nasıl google hemen çıktı çok mu mükemmeldi asla değildi bir ilk çıkartıp mesela bu ne biliyor musun yüzde 20 si belki yapmak istediğimizin yüzde 20 si. Aslında ilk 10 derste bizim amacımız buydu.

ilk 10 dersi bi verelim bu böyle lessons da olsun ordan aldıklarımızla 90 ders tasarlayalım ama o hani şey AMA olmadı (PMT2).

İlk 10 ders denince, İçerik uzmanları aklıma geliyor. Evet, yani çok, ne diyeyim yani BÖTE'den olmadığım halde, böyle yapılmayacağını anlamıştım şeydeyken ilk on dersin hazırlandığında. O iş böyle olmaz şeyini anlamıştım. O yani, aklıma gelen o(CT4).

Eee çok yani güzel belirlenmiş ilk 10 ders başlığı vardı. Ama içeriklerinin yazımında problemler olmuştu. İçerik yazım sürecinin değişmesi gerektiği, İlk 10 dersten sonra ortaya çıktı. Yani konu uzmanlarının içeriklerin alınacağı konu uzmanlarıyla farklı bir şekilde devam edilmesi gerektiği ortaya çıktı. Eee bu öğrenme sürecinin geçtiği ilk 10 ders diye düşünüyorum (QAT1).

Hatta içerik uzmanlarımız yoktu hani içerik uzmanı bulmak da bir dert oldu... onlardan istediğimiz şekilde içeriği almak bir dert oldu. ee bütün bunlar bu proje özelinde ilk defa karşılaşılan sorunlardı. ve bunları ee projenin şartnamesini yazarken öngöremediğimiz sorunlardı (APS1).

İlk on dersle ilgili çok detaylı planlama yapılmamış olduğunu gördüm (QAT3).

İlk 10 ders mi? of. Ooo... Kötü. Yüzbin tane review geliyor. Dön, dön, dön, tekrar tekrar bak, tekrar bak, tekrar bak (CT5).

Ee ham içerik, senaryo kontrolü daha sonra üretim kontrolü ve en son da test aşamaları tamamen oturmamıştı. Kalite kontrol süreci olmadığı için (QAT4).

Çünkü 3-4 farklı managementta hep tartışıldı tartışıldı kalkıldı. Bir sonraki multi managementta yine aynı konular tartışıldı. Karar almada o ilk ders 10 sürecinde gecikildiğini düşünüyorum daha uzaktan bakan biri olarak (PMT4).

Anlaşmaya çalış, derdini anlatmaya çalış. Ne istiyoruz onu anlatmaya çalış. EE... Şeyle çatış, hocayla çatış...hayır öyle istemiyoruz ama falan diyor böyle (CT5).

ee yani bir şeyin eğitsel tasarımı yapılacak. Yani bu belki de ilk söylediğimle bağlantılı. Content is the king diye bir laf var. Hakaten öyle. O çok net ortaya çıktı. (QAT1).

Süreci zorlayan maddeler (Ham içerik için):

İçeriğin başka bir şekilde yazılmasının istenmesi

Onay sürecinde de içeriğin başka bir şekilde yazılmasının istenmesi

Örneklerin hedef kitleye özelleşmesinin istenmesi (Course Development Meeting Minutes).

o ham içerik düzgün olmayan dersler bizim için çok sancılı oldu (QAT2).

Ham içerikte bazı ingilizce terimlerin türkçe çevirileri google translate gibiydi. Tam anlamı vermiyordu bu da daha sonra değiştirildiğinde bütün süreci etkiliyordu (SWT4).

Anlatımın sonuna bir bitiş cümlesi lazım (End User test results).

Sıfırdan yazmak gibi bişey oldu. İçeriği oluşturmak yordu yani (QAT3).

Şu dersin Türkçe arayüzü çıktı. O dersi değiştirin. Bundan sonra sadece Türkçe arayüzle ders üretelim. ” gibi bir email birçok sebepten hemen uygulamayacakken, problem(ordu)(SWT1).

IT konularının üretim bitene kadar revizyona uğraması, ekranların değişmesini ve bunu daha en başında bile bile üretime başlamak (SWT1).

Onlar da (soft skills courses) çok fazla ama bilgi var yani çünkü orada kırpma çalışsak da şimdi konu itibarıyla o kadar kanun şey olan bir ders ki. Soft Skill derslerin de tabi dinamikleri daha farklıydı tabi tabi kesinlikle(QAT2).

İnternette doğru ve güvenilir bilgi zor. Eski yöntemlere başvuruyoruz: Hocalar ve basılı malzeme. (Projenin) bilgi kirliliğine katkısı olursa, sıkıntı olur (12.03.2016- Hidrosan Hidrolik Makina (Musa Ertunç, Genel Müdür).

Örneğin, ben kendim düzelttiğim birkaç içerikte, direkt hani sanki bir kitaptan, bi yerden kopyalanıp yapılandırılmış gibi içerikler de gördüm. Hani elden geldiğince düzeltip, size yönlendi ama siz bile, o düzelmiş hali bile şey olmuştur, göze batıyordur ki ilk hali bize gelişi nasıldı yani, böyle dersler vardı (QAT4).

Evet. Bilginin güvenilirliği, içerik hiçbir şekilde kontrol edilmiyor yani. Kafadan gitsin. Yani adam dersi koymuş mesela siteye. Kim kontrol edecek onun doğruluğunu. Nerden bileceksiniz (SMET1)

bir kere outline karar vermek önemli oldu. Çünkü kimin seyredeceği belli değil. Acayip geniş bir kitle var ee işin içinde yani. Burdaki projenin hedef kitlesini düşünürseniz internette herkes alabilir. Şimdi ben burada fotoğraf dersi veriyorum mesela ama Ankaradan belli bir kitle geliyor. Aynı frekansdayız zaten. Anlaşabiliyoruz. Ama bu çok genel bir şey yani. Bunu çok eee en açık haliyle anlatılması lazım. Ama konularda çok kolay konular değil. Hedef kitle geniş ama tabi gidipte Güney Doğu da tornacı ustasıda ürün fotoğrafçılığı dersi alacak değil yani. Hani en azından bir şeyi olduğunu farzederek o şeyi hazırlamak lazım. Outline hazırlamak lazım (SME_SWT_DT1).

İlk aklıma gelen sorun, içeriğin anlamlı sıralanmaması yani. Hani biri tamam şeye saygı duyuyorum hani bir insan uzmandır. Hani bir şeyi nasıl anlatacağını bilir ama mesela kendisi şu şekilde anlatıyordur ama bunu bize yazıyla bunu verince o, o şekilde olmuyor yani hani. Bunun da anlamlı parçalara bölünmesi gerekiyor (CT1).

Yani benim hep söylüyorum en büyük sorun dil bilgisi olayı idi (CT3).

Ek Materyaller konusunda, benim aklıma gelen bir sıkıntıyı belirttim. Örneğin dersin materyallerinin ham içerikten ayrı tutulmaması ve ilk baştan tespit edilmesi çok önemli. Çünkü ileriye doğru kaydıkça, bunu ders ek materyali sadece sözlük ya da sınav değil, atıyorum izlenice. En başta belki de tespit edilmesi gereken şey, bu sefer onun değişmesi senaryoyu etkiliyor, senrayo bu sefer geriye dönmeye başlıyor süreç...(QAT3).

ölçme değerlendirme kısmı çok geç... Entegre oldu çünkü hani sadece şey önemli değildir içerik vermek. Sizin onu bir de nasıl measure ettiğiniz yani ölçtüğünüz de önemlidir. Hani esas kısım orada başlar. Siz hani güzel bir şekilde ölçmezseniz, kişiye feedbackleri güzel vermezseniz hani bunun öğrendiğinin kanıtı olmaz (CT3).

Ve bana sorarsanız en büyük şey (konu) içeriklerin sahibi kim olmalı, içerikleri kim yazmalı, içerikler nerden gelmeli sorularına aslında insanların kafasında farklı cevapların verilmeye başladığı nokta (QAT1).

QAT raw content sürecinde, konu uzmanlarıyla ilgili yaşanan problemlerden bahsetti. "Bilgeiş eğitim platformu, son kullanıcının dersi aldıktan sonra öğrendiği bilgiyi pratiğe dökmesini hedefleyen bir portaldır. Fakat CT'nin hedefindeki dersi, konu uzmanları üretmeye çalıştıklarında bir takım iletişim kopuklukları ve beklenti farklılıkları oluşuyor." diyerek CT den raw content için gelen feedbackleri, konu uzmanlarına uygulamakta yaşadığı problemlerden bahsetti (Course Production Planning Workshop).

Bir de bazı çok spesifik alanlar seçtik. O spesifik alanlarda Türkiye'de içerik sağlayacak kişiler yoktu. Bi bölümünü hatta...Evet, Hırvatistan'daki firma aracılığıyla işeyle bulundu. Yani genel olarak içerik, hani gecikme ilk başta bundan yaşandı (APS1).

Daha önce online içerik hazırlamamıştım. Anlattığınız şeye şimdi eğitmenler anlatıyorsunuz. Karşınızdakinin tepkisine bakıyorsunuz. Kendinizi düzeltiyorsunuz ondan sonra ona göre anlatıyorsunuz. Ya çok şey anlatıyorsunuz, ya tek tük anlatıyorsunuz. Anlamadıklarını görünce daha basit anlatıyorsunuz. Eğlenceli yapıyorsunuz sıkıldılarsa bilmem ne. Şimdi bu (online ders) böyle karşıdan(öğrenciden) hiç bir feedback yok. Bilmiyoruz yani nasıl ders. Bir de video. Belki atlaya atlaya gidecek adam belki. Bilmiyorum ki yani nasıl olacağını. O orada şeyi verme konusunda bayağı bir tecrübe kazandım ya da kafa patlattım diyeyim yani hani nasıl feedback almadan şey hazırlanır eğitim hazırlanır yani (SME2).

Kitap yazmak gibi bir şey aslında. Onda da bir şey yok aslında karşıdan. Onda da bir feedback yok. Hani onda ikinci baskıyı çıkarırsınız milletin yorumlarından. Ama şeyden çok farklı yani hakikaten. Sınıf derslerinden inanılmaz farklı böyle bir şey hazırlamak...zor (SME_DT1).

Yani siz bi alanda uzman olabilirsiniz, o alan sizin eeee çok deneyimli olduğunuz bi alan olabilir ama hiç bi zaman bunu anlatmamış olabilirsiniz (APS1).

..bir konuda öğretim tasarımı yapılacaksa, bu öğretim tasarımıyla ilgili alınacak kararlar konudan çok fazla bağımsız değil. Yani orada konu, konu uzmanının eee know-how'ının bilgisinin ve katkısının önemi çok büyük (QAT1).

Ne yapmaya çalıştığımız, proje ne yapmaya çalışıyor, projenin hedefleri ney bir de uzaktan eğitim nasıl hazırlanmalı? Bu tarz, uzaktan eğitim içeriği çünkü gerçekten normal eğitim içeriğinden Farklı olmalı. Yoksa biz işte senaryodur, eğitime dönüştürmedir, o süreçlerde çok zorluk yaşadık (QAT2).

ilk bakış açında, çünkü beklediğiniz anda bi yere "paper" gönderdiğinde de "review" geldiğinde önce bi "reject" mi "minor revision" mu gör, bekle, biraz sindir o cevabı ondan sonra "review" lere bak o hesap yani, biraz sindirmek anında tepki göstermemek daha faydalı olur. Ama ben kendi adıma şunu da gördüm. Hani onu görmek istemiyor insan.

eee. hani... bir "revision" olduktan sonra hatta içerik, ham içerikte yurtdışına gidip gelmesin diye, ben takım arkadaşımı da biliyorum, bi çok "review" leri, söylenilen "review" leri kendimiz yaptık. Yani kalite kontrolcü olmamıza rağmen. Yani yapıldıktan sonra net bi tabloyla, baştan başka bişeyler daha istendiğinde bu hoş bi ortam değil yani. Bu doğru bi yöntem değil (QAT3).

... dersin kalitesi ne nasıl yani o dersten üçüncü kişilerle buluşmak için nasıl hazırlanmalıda nasıl hangi teknik detaylarla hazırlanmalıda en büyük fayda sağlansın kısmını karşılıklı çok uzun sürede aynı sayfaya gelmeye çalıştık. Bide bunun içerisinde başka tabi yani bizim dışımızda başka dinamiklerde var, başka taraflarda var. Örneğin bu derslerin bir içerik yazıcısı var, bu içerik yazıcısı tamam hadi bir şekilde onlar dersleri hazırlıcaklar powerpoint bilgilerini aktarıcaklar tabi o konularda çoğu zaman sizde müdahale edemiyorsunuz çünkü sizde hiçbir dersin uzmanı değilsiniz. Dolayısıyla bazı konularda o ham içeriği sağlayan hocanın bilgisine güveniyoruz ama siz tabi farklı konularda kendilerini yönlendiriyorsunuz (PMT3).

Ham içerik onay problemleri: Yeni içerik eklenmesi, Konu uzmanına dönüş gerekmesi, Yeni örnek istenmesi (24.03.207 PM Presentation)

İkinci review süreci tamamen kalkmalı, bunun yerine ilk verilen revizyonlar daha spesifik olmalı. (Course Production Planning Workshop Minutes).

Örneğin; "bu şekilde olmasın" gibi gelen bir yorum, önerisi ile birlikte neye işaret ettiği daha anlaşılır biçimde gelmeli (Course Production Planning Workshop Minutes).

Siz ham içeriğe zaten onay vermiyorsanız demek ki orada bitakım bilgi eksikliği vardır. Sizin oradaki en büyük açmazınız konuya ham içeriği hazırlayan kadar vakıf değilsiniz. O zaman yapıyorsunuz, eğitim teknologunun getirdiği bi takım özellikleri orada kullanıyorsunuz. Ama içinize sinmiyorsa, siz de kendinizi son kullanıcı yerine koyup bir metin okuduğunuzda ya bu metin ne anlatmak istiyor. Ya da örnekleri yavan kaldı diyorsanız onay vermemeniz lazım. Ya alternatif bi alan uzmanı buluyor olacaksınız ya da ilgili alan uzmanıyla daha sıkı iletişim içinde ham içeriği revise edeceksiniz diye düşünüyorum. EE.. evet anlaşılmayan konular internetten şuradan buradan araştırılıyor ama kaynaklar her zaman doğru olmayabiliyor. Güvenilir kaynaklara ulaşmak çok çok önemli. Aslında burada baya bi avantajlı bir konumdasınız üniversitede olduğunuz için. Çok değişik bölümler var. O bölümlerle iletişim içinde olmanız... ne kadar geri dönüş alırsınız o tabi ayrı bişey. Çünkü herkes destek olur mu olmaz mı ne olur ama öyle bir avantajınızı kullanabilirsiniz burada. Ama buradaki sıkıntı gerçekten ya alternatif bi alan uzmanıyla ufaktan bi gözden geçirme yapmak ya da alan uzmanının kendisiyle bakın ben. burası içime sinmedi, anlaşılıyor burası (SME_DT3).

İkinci revizyon sürecini ortadan kaldırılması, Revizyonları ve kontrolleri tek kontrol üyesinin yapması (28.09. 2016 PM presentation)

İşte elimizde bunlar (standartlar) olmayınca hani kendi temel prensiplerimiz üzerinden gittik yani. Hani ne bileyim en temel şey de hani örneklendirmenin çok kullanılması gerektiği, ne bileyim mesajların kısa ve özli verilmesi gerektiği. Hani bu şekilde kendime notlar aldım mesela. Yani bireysel tecrübelerimden kendine standart yarattım. Bir derse baktığımda o standart olarak kendime notlar aldım mesela hani. Mesela bir dersin girişinde bu var mı şundan bahsedilmiş mi? Hani o şekilde geliyor mu? Örnekleniyor mu? İşte, sıralamalar doğru mu? Hani kendime bu şekilde taslak notlar aldım (CT1).

Sürecin nasıl ilerlediği vs ama aslında buradan şöyle bir ders almamız gerekiyor. Bir storyboard hem müşteri tarafından hem hazırlayan tarafından gözden geçirme toplantısı ile netleştirilip altına imza atılıp, budur denmeli. Ondan sonra üretime başlamalı. Yoksa biz yapıyoruz, süreci ilerletiyoruz ilerletiyoruz ilerletiyoruz. En son aşamada aslında başa alıyoruz. En büyük kayıplarımızdan birisi de o oluyor gerçekten. Zamanı iyi kullanmamış oluyoruz, insan kaynağını iyi kullanmamış oluyoruz. Üzerinde yaptığımız çalışmayı, bir daha yaparak bir daha bir daha hatırlama gerekliliği de çok büyük kayıplara neden oluyor (SWT_DT3).

Dersler bitti ama nasıl bitti, surec sanciliydi ve benim ilk deneyimim olduğu için bu durum beni sasirtmadi degil (SWT2).

Ne yapmaya çalıştığımız, proje ne yapmaya çalışıyor, projenin hedefleri ney bir de uzaktan eğitim nasıl hazırlanmalı? Bu tarz, uzaktan eğitim içeriği çünkü gerçekten normal eğitim içeriğinden Farklı olmalı. Yoksa biz işte senaryodur, eğitime dönüştürmedir, o süreçlerde çok zorluk yaşadık (QAT2).

Storyboard demek normalde aslında üretime aşamasına gelmiş üretimde çok da bişey fazla müdahale edilmeyecek diye yorumluyoruz biz. Storyboardın mantığı budur...(çok sorun çıkan senaryolarda)Burda gerçekten demek ki biz aslında ne anlatmak istiyoruz, gerek alan uzmanı gerekse storyboard hazırlayan ekip ile ne anlatmak istiyoruz. Son kullanıcıya ne vermek istiyoruzun bilincinde olmadan storyboard hazırlamışız (SWTDT3).

storyboardun değeri çok önemli. Storyboardun içindeki bilgiler çok önemli. Hiçbir zaman storyboarda hadi ya bir başlansında sonra gördüğümüzde... kervan yolda düzülür olmasın (DT3).

Ama hani içeriği düzgün yapıyoruz mesela hani düzgün kabul ediyoruz hani. Sonra storyboardda bu olay geçtiğinde bir bakıyoruz hani içeriğimizin çoğu storyboarddan gitmiş ya da hani içerikte ne bileyim bir sürü cümle olan şey storyboardda bir cümle ile geçilmiş, hani çok yüzeysel anlatılmış. Mesela çok önemli bir bilgi orada yer bulmamış. Hani bunu görünce insan çok üzülüyor (CT1).

...senaryo aşamasında işte, hiçbir şey katmadılar, o hani kitap gibi o sayfanın o bilginin senaryo aşamasında zenginleştirilip, öğretim materyali haline getirilmesi sürecini biraz düzenlemek isteyebilirdim. Senaryolaştırmak, hamdakini aynen öbür tarafa geçirmek değil yani. Yani aslında daha çok şeyin olmasını gerektirmeli işte bu innovative yöntemle falan daha farklı ders olmasını... Yani onu ve senaryoda yapıcakları değişimi. Yani kalkıp da onu zaten ham içerikten beklemek anlamsız. Onu senaryoda yapıcaksın. Üreten de üretecek. Senaryoda yapmadıkları için de hiçbir şekilde giremedi sistemin içine (CT5).

Her içerik için farklı yetkinlikte eğitsel tasarımcı gereksinimi (vardı) (SWT1).

Uzman ham içerik kabul edildikten sonra senaryo ve ürünü hiç görmüyor bile. Yani, belki, onun demek istediği şeyi biz çok yanlış yansıtmış olabiliriz (QAT2).

Yani ben içeriği verdim, bir daha yokum ben yani. Bir tek işte biz şunu yapmaya çalışıyoruz, bize bir örnek gönderir misiniz diye bana bir geri dönüşler oldu sıkıştıkları zamanda. Bir de mesela bir cümlede hata olmuş. Diyelim ki bir cümlede bir şey diyorum sonra öbür cümlede onu yalanlıyorum kendi kendime. Bu hangisi doğru diye sordular mesela. Şu doğru diye. Bu kadar. Hani başka bu dersi nasıl anlatalım? nasıl verelim? şöyle mi olsun? Diye (SME1).

Ders için kullanılacak resimlerin internet ortamında free veya shutterstokta bulunmaması durumunda resimlerin uygun olmaması gibi problemler oluyordu (SWT4).

Visuals: Resme eklenen yazının görünür olması lazım. Kullanılan örnekte yazıya bir arkaplan eklenebilir mesela. Kullanılan örneklerin anlamlı olması lazım. Resmin üzerine metin eklenecek ise o metnin resim ile bir ilişkisi olmalı. Orman resminin üstüne "Bilgeş" yazmanın hiçbir anlamı yok. Mantıklı bir örnek verilmeli (End-user test results).

oluşturduğunuz ürünün üretileceği ortam hakkında bilgi sahibi olmamak da süreci zorlaştırabiliyor çünkü daha sonra ürünü bu altyapıya göre birçok kez şekillendirmeniz gerekebilir.... Senaryo açısından (kontrolcü) ekip derslerin daha farklı bir şekilde anlatılmasını isteyebilir ya da farklı revizyonlar önerebiliyor fakat senaryo hazırlanırken portal da göz önüne alındığından ufak anlaşmazlıklar olabiliyor. Bu durumda dolayısıyla süreci zorlaştırıyor (SWT3).

Bir de burada öğretim tasarımının problemlerini bence biz uygulamada daha çok gördük (CT1).

Ekran kayıtlarında adımlara başlamadan önce ne yapmaya çalıştığımızı bir örnek ile gösterelim. Örneğin rötuş yapılacak ise farkın belirgin olduğu iki resim önce gösterilsin. Sonra işlem adımları anlatılsın. Ekran kayıtlarının sonunda yapılan işlemi net olarak görebilmeliyiz. Düzenlenen resmin ilk hali ile son hali gösterilirse ne yapıldığı anlaşılabilir. Bu şekilde işlemin sonucunun ne olduğu belli olmuyor.

Soru: 100 içeriğe nasıl ulaşacağız?

Çözüm: Hızlı Üretim

Nedir Hızlı üretim metodu?

- Konu uzmanları ppt ortamında eğitim materyallerini hazırlar.
- Üretim sırasında ppt ortamından çıkmadan her ekran için grafik tasarımlar yapılır, uygun görseller eklenir.
- Belirli süre ve sayıda videolar ekranlara eklenebilir. (max 15 dk)
- Çoktan seçmeli sorular eklenebilir.
- Video ve çoktan seçmeli soru dışında etkileşim içermez.
- ICT player içinde çalışır.
- Playerın sağladığı WCAG uyumluluğu korunur (28.09. 2016 PM Presentation).

yani gayet powerpoint şeklinde bazı dersler, bazı dersler page turner şeklinde geldi (CT6).

CT moderatörün sorusuna yanıt olarak; Başından birşeyleri düzeltip hareket edilmeli, ne istediğimiz konusunda anlaşmalıyız aksi takdirde bir iş taraflar arasında çok fazla dönüyor ve bu durum süreci çok uzatıyor" dedi ve son zamanlarda gelen içeriklerin beklentilere daha uygun olduğunu ekledi. CT bazı derslerde simülasyonlu içerikler olacağından bahsedildiğini fakat şu ana dek bir vitrin dersinin bile olmadığını, yani bir standartin oturtulmadığını

belirtti (Course Production Planning Workshop Minutes).

CT indicated that they need a totally innovative approach to online learning (1. Weekly Meeting Minutes).

Hani ders bazında yaptığımız eee ufak tefek şeyleri bir yana koyarsak genel bütün içerisinde inovatif bir şey yaptığımızı düşünmüyorum (QAT1).

Mesela bu innovative yöntem yani bunlarda çok zayıf kalındığını düşünüyorum (PMT2).

10 saat ofiste olan işadamı için bir program olabilir. Eğitimler görsel ağırlıklı olmalı. Okuma gerektirmemeli. Animasyonlar kullanılmalı (Feedbacks from Need Analysis Interview).

Daha dinamik, hareketli ve hikayelerin içlerine yedirilmiş bir ders daha etkili olurdu. Bilgeş projesinin bir çok dersinde, hikayeleşme sadece eğitimin başında oluyordu (SWT4).

Kavram öğretimine dönen dersler kesinlikle var, ama procedure learninge uygun dersler de oldu (QAT2).

Hani genel tüm eğitimde (eğitim sisteminde) de böyle galiba. Hani böyle bir biz yapılandırmacı olacağız şey olacağız diyoruz ama. Yine yaptığımız düz anlatım yani... Bir de şey sorunu var hani bizim pedagojik olarak da sorunumuz var hani. Mesela çoğu dersi düz anlatım yapıyoruz ama biz düz anlatımı genelde kötüliyoruz böyle. Hani düz anlatım olunca onu aforoz etmek istiyoruz da ama yine bir düz anlatımdan da vazgeçemiyoruz (CT1).

işte örnekler günlük hayattan olsun, kendileri de bişey yapsınlar sonunda falan. Onlar her zaman olmuyor, her derste. Bazen de oldu evet ama bazılarında olmuyor yani. Dolayısıyla her derste kendisine özel bişeyi var, tavrı var. Yani hani bazıları çok conceptual mecburen bazıları daha adım adım bişey yapıyor. İçeriğe çok bağlı. Konuya da çok bağlı olarak değişiyor yani ama böyle hani (CT5).

Senaryo kontrol sürecini zorlayan maddeler

- Yeni içerik
- Konu uzmanına dönüş
- Yeni örnek
- İlk kontrolde yer almayan başka ekranlara eklenmiş revizyonlar (24.03.207 PMT Presentation).

...storyboardın altına imza atmak böyle güzel güzel renkli renkli şekilleri görmek değil. Gerçekten onun içinde ses metni uygun mu, o verilen konuya uygun görseller seçilmiş mi onların incelenmesi diye düşünmek lazım. Bunun üzerine, sonraki storyboardlarda gerçekten taradık yani. Storyboardu, storyboard yazıyormuş gibi taramaya başladık. Ondan sonra dedik ki, bakın burada, işte bu cümle şey, uygun değil. Bu cümlede işte, düzelttebildiklerinizi tabi ki düzeltiyorsunuz. Bazıları çok bariz. Yazma hatası olabiliyor ama kaçıyor, illaki (SWTDT3).

... öyle bir lejant aslında (sb okuma kılavuzu) anlamlı normal şartlarda. Ama o lejanta kendileri de uymadıkları için biyerden sonra onun da bir manası kalmıyor aslında. Aslında, yardımcı olabilir normal şartlarda. Ama o normal şartlarda çalışmadıkları için... işte birisi evet o yeşil şeyi kullanıyor. Öbürü kullanmıyor mesela. Dolayısıyla tahmin ediyoruz biyerden sonra. .. onlar bi farklılık yaratıyor işte. Bazıları. en son bazı dersler wordde bile geldi yani senaryo olarak (CT5).

Biz ilk dersten sonra şöyle bir tecrübe edindik. İlk derste, aslında acı bir tecrübeydi bizim için. Ses dosyalarını, storyboardun biliyorsunuz bir şablonu var. Bunlar ses dosyalarıdır dedikleri, dediğimiz kısımları alıp, stüdyoya gönderdik, çekimlerini yaptırdık diyemiyorum. Çünkü sürekli stüdyodan bize telefon gelmeye başladı. Neden? E burada işte cümle düşüklüğü var, biz bunu nasıl okuyalım. Okurken takılıyoruz vs şeklinde (DT3).

Bahsettiğim süreç karşı tarafı oldukça yıpratın ve yazım dilinde de sertlik yaratmasına sebep olan bir durumdu. hatta şimdi de (kafamda) bazı soru işaretleri var niye bu kadar sert diye (QAT3).

Zorluk... Ya bu projeye özgü olarak benim gördüğüm (zorluk), çok fazla hani "check" hani kontrol süreci (QAT4).

Dersleri kontrol eden ekip açısından bakıldığında, sürenin uzamasının nedeni kontrolün detaylı ve titizlikle yürütülmeye çalışılması olabilir. Ders kontrolleri planlanan süreyi zaman zaman aştı ve ekip kontrollerin sağlığı açısından bu uzamaları göz ardı etti. İlaveten kontrol aşamasında kontrol eden kişi ve ekiple birlikte yürütülen çalışmalar da bu süreyi uzatabilmektedir (SWT3).

bunu her storyboardda yazıyorduk. Dersin tümüne bakın. Dersin tümünde böyle bir sorun varsa düzeltin falan gibi mesela. Hatta şeyin de yazmak zorunda kaldım ben. Sözlükte bilmem neydi falan oralara da kontrol etme gibi. Teker teker onlara da yorum yazdım ki yorum olarak görülsün. Hani bakmazlar yoksa başka diye (CT4).

E-Learning Company ve CT, süre/teknik kısıtlar kapsamında uygulanabilir olmayan player/içerik tasarım revizyonları hakkında anlaşabilmesi (28.09. 2016 PM presentation).

Senaryo açık ve anlaşılır değilse dersin üretimini zorlaştırıyor (SWT4).

Bir de ben ıı bu tür yazılım projelerinin böyle şöyle ıı nasıl söyleyeyim, aşamalar halinde olgunlaştığını düşünüyorum (QAT1).

Moderator katılımcılara, bu süreci en fazla uzatan 3 şey nedir sorusunu yöneltti. CT bu soruya şu şekilde cevap verdi; “İterasyon sayısı azaltılmalıdır, yapılan baştaki hataların sonuna kadar gidiyor olması sonucu olarak aynı işi tekrar tekrar yapmak ve bu hataların tekrarlanması, süreci uzatan en önemli etkenlerdir (Course Production Meeting Minutes).

Telefonda bana söylenen şöyle bir şey var: “böyle bir senaryoya siz daha önceden nasıl onay verdiniz, bu senaryo olmasaydı, bu dersi 2 kez üretmek zorunda kalmazdık”. Ben buradan yola çıkarak emin bir şekilde söyleyebilirim ki: “Senaryo bütün sürecin içindeki en önemli unsurlardan biri (QAT3).

Evet, ham içerikteki şimdi senaristle konuşuyorum. Senarist diyor ki: “Ya ham içerikte böyledir diyor”. Ham içeriği açıyorum hakikatten öyleymiş. Ham içeriğin içerisindeki kodu inceliyorum, kodu yanlış, puanlar okunmuyor. İşte ne bileyim orada da hiç dil bilgisine dikkat edilmeyince, senaristte o gevşeklikle aynı şekilde devam etmiş falan filan bu şekilde gidiyor, ben oradan alıp toparlayıp tekrar prodüksiyona kadar getiriyorum (DT2).

İşte yazım hataları zaten bitmez. Ee.. şey, başka böyle kontrol etmememiz gereken, bize gelmeden önce çözülmesi gereken şeyler. İşte, mesela derslerin uzunluğu. sonuçta istediğimizi anlatmaya çalışıyoruz, anlatamıyoruz. Hatta yani yaptıklarımızda bile sıkıntı var hala bence. İşte şeylerde, e-ticaretteydi galiba. Bu şey, branching işte ona göre devam ederiz falan. Ama sondaki değerlendirme de hepsini birden soruyor. Arkadaş görmedim ki ben o dalı yani hani o dalı görmedim. Dolayısıyla onla ilgili soruların bana zaten gelmemesi lazım, o sorularla niye değerlendiriliyorum ben. Yapsalarda yarım olarak yaptılar işte. (CT5).

Siz ses studyosuna gönderiyorsunuz, oradan dosyalar geliyor. Onları kullanıyorsunuz. Görselleri kütüphaneden indiriyorsunuz. Görselleri kullanmaya başlıyorsunuz. Daha sonrasında, ya bu görsel buraya uymamış veya seslendirme metni doğru değil, aslında burada şunlar şunlar da ifade edilmeli dediğimiz şey, aslında üretimin başına dönmek değil. O aslında sizin storyboardun başına dönmeniz anlamına geliyor. Dolayısıyla, bakın süreci ne kadar geriye almış oluyorsunuz. Hani burda, süreci geriye aldık, sadece bu bi zaman kaybı diye düşünmemek lazım (DT3)

Aslında her defasında her yaptığımız iş bi sonraki işi besliyor dolayısıyla o işin düzgün, doğru, yerinde, anlaşılır olması çok çok önemli. Yoksa gittikçe eee... hani kanayan yaranız büyüyor. Öyle söyleyeyim. Küçüktük bişey büyüyor büyüyor büyüyor en sonunda dağ gibi bir problemle karşılaşılıyor oluyorsunuz (CT3).

İterasyonlar hep süreç içerisinde oldu, raw da iterasyon oldu, storyboard da iterasyon oldu testte iterasyon oldu, yani testten hiç en baştaki raw’a iterasyon gittiğini hatırlamıyorum ama bunu full bir resimde görmedik. Hepsi küçük küçük circle’lar içerisinde, bütün iterasyonların hepsi kendi içinde yapıldı (CT6).

Acaba, ham içerikte mi atlanan şeyler oldu, belirsizlikler vardı. Ya da stoyboardu onaylarken iyi gözle bakmadık da üretimde biz niye böyle değişiklikler istiyoruz diye kendi kendimize de sormamız gerekiyor diye düşünüyorum (DT3).

Yani birinde kriterle belirlenmişti işte.. en az şu kadar video olacak.. şöyle olacak böyle olacak.. diye belirlenmişti ama mesela gelen ham içeriğin kalitesinin nasıl olacağına dair bir şartımız yoktu. Ee ondan sonra işte ekran geçişlerinin nasıl olacağı, derslerdeki çekimlerin kalitesinin nasıl olacağına bir açıdan iki açıdan.. onlara ilişkin kriterler belirlemek zaten çok zordu ama bunlar da belirlenmediği için..ortak bir noktaya ortak bir alana varmak.. çok zor olduğu için.. bi dersin geliştirilip onun tamamıyla bi kullanıcı için kayıt olabilecek hale gelmiş hali çok zaman aldı (APSI).

Yani, şöyle bir şey şimdi, özellikle bazı arkadaşlar güzel bir şey olsun ama ben de bilmiyorum bakalım. Bir getirin bakalım, güzel bir şey yaparsanız biz de okeyleriz. Ya bu böyle olacak bir şey değil. Yani örneğini verirsiniz, dersiniz ki ya bu böyle olması lazım (DT2).

Çünkü böyle bir proje belki de yapmamışlardı MOOC anlamında. MOOC biraz daha detay istiyor (CT3).

Yani bir tanesi bizim de deneyimsizliğimiz. Ufak tefek ders yap bir şeyler yap ama bu çapta biz de bir şeyler yapmamışız. Biz de bu kadar süreci tam olarak hani profesyonel içerik üretim sürecinin içine dahil olmadığımız için

olabilir. Bizim de deneyimsizliğimiz vardı. Ondan sonra bu 2 taraf için de geçerli yine 2 taraf için de geçerli olan yelpazenin geniş olması (CT2).

Her içerik için farklı üretim teknik ve süreleri gerekmesi zorluğu (SWT1).

Moderator katılımcılara, en temel basit (primitive) ders nedir ve en yüksek kalite ders nedir sorusunu yöneltti. CT member 3D printing dersinin yüksek kalite bir ders olması gerektiğini fakat üretimden çıkan sonucun bu şekilde gelmediğini belirtti. 3D printing dersinin içerik, raw content ve senaryo bakımından düzgün olduğunu fakat üretim sürecindeki çekimlerde eksiklikler olduğunu, farklı açılardan ve farklı yöntemlerle çekimler olması gerektiğini belirtti. SWT1 derslerin çekimleri açısından yapılabileceklerin sonu yoktur fakat üretim süresi göz önünde bulundurularak incelenmelidir diyerek, 3D printing dersinin, verdiği bilgiler açısından kaliteli ve hedefe yönelik olduğunu belirtti (Course Development Meeting Minutes).

Portal da sürekli bir teknik sıkıntı olması süreci yavaşlamasına neden olan durumlardan biriydi (SWT2).

Onaylı senaryodaki bir ekranın, üretim sırasında teknik olarak çok zorlayıcı olduğunun görünmesi ve bunu o ekranı kodlamaya başlayana kadar bilememek (SWT1).

Bana göre ders oluştururken alt yapının sizin çalışmalarınızı desteklememesi kesinlikle çalışmayan bir şey. Şöyle ki, süreç boyunca birçok değişik method, tasarım ve yöntem kullanabilirsiniz fakat oluşturduğunuz dersin entegre edilip üretileceği platform sizin değişimlerinizi karşılayamadığında bu kesinlikle çalışmayan bir durum olarak çıkıyor karşınıza (SWT3).

Hocayı sadece bütün çekim boyunca tek açıdan Tripod üzerine kamerayı koyup çekmişler gibi vardı yani tabi ki kimse onu izlemeyeceği için... Mesela o da, E-Learning Company'nın böyle bi şeyiydi. Onu oturan herkesin düşünmesi gerekir yani günümüz dünyasında...Bi bu açıdan, bi şu açıdan, bi farklı açıdan çekecek ki ekranın da değişmesi gerekir. Çünkü şimdi kimse hiçbir şey izlemiyor yani, izleyebilmesi için ilgi çekici olması gerekiyor, faydalı olması gerekiyor (APS1).

CT, çekimlerde yapılan bazı hataların asgari kalite düzeyinde olmadığını ve çıkan ürünün kontrolden geçerek CT'e iletilmesi gerektiğini söyledi (17.08.2017 Course Production Planning Workshop).

bazı sıkıntılar çıkabiliyordu. Ses ve görüntü senkronizasyonları tam olmuyordu. Bu da dersin kontrol aşamasında takibini ve sürecin uzamasına sebep oluyordu (SWT4).

Textler var biliyorsunuz, işime engelliler için de değil mi? Text metinleri oluyor ama o text metinleri her zaman birebir seslendirme metinlerine karşılık gelmiyor. Orada da biz bi karmaşa yaşadık. Text metinleriyle seslendirme metinlerinin ne olduğunu storyboard da görmek lazım gerçekten. Ve storyboarddaki seslendirme metinlerinde de şu bekleniyorsa onu da bulmak lazım. Biz ee... bazen onu gördük mesela (DT3).

Ekran kayıtlarında özellikle ses ile ilgili sorun var:

- Ses kalitesi ve seviyesi çok düşük.
- Seslendirenin diksiyon problemleri var.
- Sesler “mono” kaydedilmiş (End User Test Results).

Eee, şey gibi yani mühendis gibi. Elde formül var. Orda ne varsa ben onu alır buraya koyarım. Bozuka da beni ilgilendirmez. Herkes öyle çalışıyor (CT4).

Ürünü üreten, o ekranı yapan ekranı bile bakmadı bence ekrana. Onun bi kere önce bakması. Yani şöyle ki, senaryoda bu resim sayfanın şu kenarına koyulduysa, üründe de o kenarda da olacak diye bişey yok yani. Görsel bir tasarımı varsa o ekranın, o kenarda olmaması gerekiyorsa al öbür kenara koy yani. Onu da yapmadılar üretimdeki arkadaş. Senaryodaki sadece bu resmi kullan diyor, o resmi bu köşede kullan ister şu köşede kullan yani. Onu ayarlamak gibi şeyleri de yapmadılar bence. Orayı biraz daha müdahale etmek isterdim (CT5).

Süreci zorlayan maddeler

Üretim Kontrol:

- Eğitim genelindeki tüm seslendirmeyi etkileyen değişiklikler
- Eğitim ismi değiştirilmesi
- Ekran eklenmesi
- Kapsamlı içerik değişikliği sonucu ses metni değişikliği
- İçerik değişikliği
- Karakterlerin çıkartılması, eklenmesi

- Ek yeşil perde çekimi
- Ek ekran yakalama videoları
- Üretilmiş eğitimin parçalanması, yeni bölümlere ayrılması
- Çizgi film tarzı karakter hareketleri
- Moodle Aday: TAT ekibinin 3 olarak belirttiği revizyonlardan herhangi biri
- Moodle Aday: İlk kontrolde yer almayan başka ekranlara eklenmiş revizyonlar.
- Moodle Kontrol: İçerik ekranları ile ilgili herhangi bir revizyon (24.03.2017 PMT presentation).

İlk derslere gelen, çok sayıda kişi tarafından farklı farklı doldurulmuş revizyon formları ve bu formların tek olması gerektiği konusunda faydalanıcı tarafının ikna zorluğu (SWT1).

Dersleri kontrol eden ekip açısından bakıldığında sürenin uzamasının nedeni kontrolün detaylı ve titizlikle yürütülmeye çalışılması olabilir. Ders kontrolleri planlanan süreyi zaman zaman aştı ve ekip kontrollerin sağlığı açısından bu uzamaları göz ardı etti. İlâveten kontrol aşamasında kontrol eden kişi ve ekiple birlikte yürütülen çalışmalar da bu süreyi uzatabilmektedir. Örneğin ekip bir araya gelip kontrol aşamasında birkaç nokta üzerinde tartışabilir, görüşebilir, fikir alışverişinde bulunabilir ve bazı kararlar alabilir, bu ve benzeri durumla süreyi olumsuz yönde etkileyebilmektedir (SWT_DT3).

Ha! Geri döneriz mantığı işlemez, gerçekten işlemez. Çünkü, aslında burada, gerçekten üretim ekibi kendinden çok fazla bir şey katmaz. Üretim ekibi tamamen, şey diye düşünün. rutine girmiş bir iş zinciri var. İşçi gibi... veriyorsunuz takır takır, o hızlı bir şekilde üretmeye çalışıyor diye düşünmek lazım (SWT_DT3).

projenin bu kadar eee revizyon sürecinin bu kadar ciddi bir zaman alacağını düşündüğümüzde ee azdı. daha fazla olması gerekiyordu.. yani 8 en az 10 -12 olması gerekiyordu ki.....(APS1).

... süreci zorlaştıran en önemli nedenlerden birisi de mesela hani kalite kontrol ekibi bütün bu şeyleri kontrol etmek için, böyle işte senaryonun işte içeriklerin kontrol etmek için var. CT ekibi gene onay vermek için var. Taa prodüksiyon aşamasında, oralara dönmemiz, zaman kaybı ve sadece başkaları tarafından kontrol edilmiş artık yapıyorum diye başlıyorsunuz, sonra da yaptığınıza onay gelmeyince de motivasyon gidiyor... Yani sorunlardan bir tanesi de bu (DT2).

Kontrol eden ekibin bu konularda çok yetkin olduğunu düşünmüyorum. Ya o da benim bir gün raporu aldım baktım, bakıyorum işte. Şey yazıyor, yanlış hatırlamıyorsam ya “ve” idi şimdi başlıkta da biliyorsunuz “ve” ve bu tip böyle şeyler bağlaçlar falan küçük harfle yazılır. Şimdi arkadaşın şeyi bu, bitmiş bir videoydu. İşte o büyük harfle yazılması lazım. Ben de artık TDK’dan yazdım uygulama TDK’dan şu şu şu maddeye bakarsanız burada bu. Yani bu onaylayan arkadaştan gelen görüntü... (DT2).

Bu kadar farklı disiplinlerdeki tasarım ve üretim ekibinin ortak standartlarda buluşma zorluğu (SWT1).

O da başka bir paydaş ekip. Yani proje kurgusunda hani bu baştan olayın içinde olmayan da bir ekip. Eee ve kendi bu şeyde de böyledir hani çalıştığımız şirketlerde de böyledir. Yazılım ekibi hep kendini bir farklı görür. Öyle bir dünya yok yani yaptığımız iş içerik geliştirme işi de bence değil. Yazılım geliştirme işinden çok farklı bir iş değil. Dolayısıyla eee orada bir ortak bakış açısına ihtiyaç olduğunu düşünüyorum (QAT1).

Ama işte en azından tek bir doküman gitse onlara ve onlarda da işte kendi aralarında bir işbirliği olsa böyle bir yorum geldi bi daha bunu yapmayın ya da üst bir mesela burdaki kalite gibi bir şey kontrol etse onları ...mesela burdaki kalitenin görevi...işte başkanlıktan çıkacak bütün dokümanların tek bir kalite düzeyine şey yapılması... delegasyondan gelen (APS3).

Technical forms have been created to follow the technical problems that arise within the project. These forms are followed through the Project cycle easily (3. Interim Report).

Acaba, ham içerikte mi atlanan şeyler oldu, belirsizlikler vardı. Ya da stoyboardu onaylarken iyi gözle bakmadık da üretimde biz niye böyle değişiklikler istiyoruz diye kendi kendimize de sormamız gerekiyor diye düşünüyorum (DT3).

Ona göre yani karşı tarafa bunu anlat, yani şunu yapma en azından değil mi? Mesela ya ben bunu beğenmedim başka bir şey getir, e ben bunu da beğenmedim, şimdi bu yani sayısız bir varyasyon diye düşünüyorum (DT2).

Evet, ham içerikteki şimdi senaristle konuşuyorum. Senarist diyor ki: “ Ya ham içerikte böyledir diyor”. Ham içeriği açıyorum hakikatten öyleymiş. Ham içeriğin içerisindeki kodu inceliyorum, kodu yanlış, puanlar okunmuyor. İşte ne bileyim orada da hiç dil bilgisine dikkat edilmeyince, senariste o gevşeklikle aynı şekilde devam etmiş falan filan bu şekilde gidiyor, ben oradan alıp toparlayıp tekrar prodüksiyona kadar getiriyorum. Yani, üretimdeki kişi, Bütün içeriğin kontrolünü yapmaya kadar döndü iş(DT2).

Yani ölçme değerlendirmeye sona doğru gitmeye başladı, ek materyaller en son ilgilenilen şeye dönüşmeye başladı filan. Çok sancılı süreçleri peşinden getirdi yani hani, bizim çözdüğümüz belki size doğru yansımayan, sonrasında "Moodle" a konulan felan, çünkü sizin bi ek materyal onaylama süreci diye birşey oluşmadı. O bizim için sürpriz oldu (QAT3).

Konu anlatım videolarında erişilebilirlik standartlarını sağlamak için alt yazılar kullanılmış. Ancak uygulama yapılan ya da etkileşimli bölümlerde alt yazılar tam olarak ya da hiç verilmemektedir (ör: Konu Anlatımı-1: 9,10 ve 11. videolarda). Bu videoların alt bar çubuğunda "Alt Yazı Seçenekleri" butonu görünmemektedir.

Videolarda ekranın altında yer alan metinlerin videoya daha yakın bir yerde verilmesi, kullanıcının yazıyı ve videoda gerçekleşen etkileşimleri takip edebilmesi için yardımcı olacaktır. Bu haliyle, adım adım uygulama anlatan ya da etkileşimli videolarda hem metinleri hem de videodaki etkileşimleri takip etmek zor olmaktadır (End User Test 1).

Mobil Uygulama dersi tanıtım videosunda sesli olarak aktarılan bilgiler alt yazı olarak sunulmamaktadır (End User Test 2)

Yine teknoloji tarafından gelen restrictionlar var. Hani her şey büyük bilgisayar ekranında değil. İşte mobile geçilmesi bir challenge (CT2).

Kullanılan teknolojinin bizim ihtiyaçlarımıza cevap vermemesi. Eski değil de hani yanlış seçilmiş gibi. Ya da çok fazla düşünülmeyen seçilmiş gibi ya da ellerinde o var ya da onu kullanıyorlar. Hani kendi üretim sistemleri o gibi hani. Sonuçta dışardan biriyiz. Onlar onu kullanıyor biz yeni bir şey istiyoruz gibi (CT1).

Etkileşimli videoların bazılarında (ör: Konu Anlatımı-1: 9,10,11. video, Konu Anlatımı-2: 3. video, Konu Anlatımı-3: 9,10. video, Konu Anlatımı-4: 8,9. video) video ilerleme barı bulunmamaktadır. Dolayısıyla kullanıcının videoyu istediği zaman durdurup istediği zaman başlatma imkanı yoktur.

Kullanıcıya adım adım işlem yaptıran videolarda kullanıcı bir önceki adıma gitmek ya da yaptıkları seçimi değiştirmek istediği zaman bunu sağlayacak bir geri dönüş yok (ör: Konu Anlatımı-1: 10. video). Videoyu tekrar başlatması gerekiyor böyle durumlarda.

- HTML5 player tamamlanma yüzdesi %100'de iki satır oluyor.
- HTML Player sözlük tooltip sorunu
- Player içerisinde videolar için alt yazı eklenebilmesi, arkaplan rengi, Text color, Text font değiştirilebilmesi
- Player içerisine not alma özelliğinin eklenmesi
- Player içerisine sözlük özelliğinin eklenmesi
- Player içerisine arama özelliğinin eklenmesi
- Volume, refresh, caption özelliklerinin Player a eklenmesi
- HTML5 Player'da geri yaptığın zaman 2 sayfanın da ekranda olma durumu
- HTML5 playerda ekran tamamlandığında 100 yazısının kenarındaki kırmızı çubuk küçültülmeli
- Etkileşimli ekranlara da alt yazı ekleyebilme geliştirmesi
- Alt yazıların videonun üzerinde çıkması konusu
- HTML 5 Player Vimeo entegrasyonu

Portal bence süreci zorlaştırma konusunda ilk 2 ye girebilir çünkü istisnasız herşeyi portala göre planlamak zorunda kalıyorsunuz. Oluşturduğunuz dersler portal ile uyuşmayan alanlarını bazı zamanlar yeni baştan bile hazırlayabilirsiniz (SWT3).

Hani ne bileyim gidip edX'in hazır portalini alsaydık daha iyi olurdu ya da baştan bir portal geliştirilseydi daha iyi olurdu gibi. Çok karışık geliyor bana hani. Ben bu işin içinde olmama rağmen bana karışık geliyorsa normal insana nasıl gelir bilmiyorum hani (CT1).

Portal Özellikleri: Portal ve moodle yapısının birleştirilmesi, Player'ın merkeze alınması, Dinamik Yapı, Kategori, Uzmanlık Alanları, Etiketleme, Üst menü yapısının düzenlenmesi, Sosyal medyada paylaşım, Kullanıcılar arasındaki online mesajlaşma, Misafir ve derse kayıt rolleri (18.01.2017 PMT presentation)

Yani altyapı ile ilgili sıkıntılar var. Çünkü niye ...portal. Çünkü biz ben özellikle moodle ile falan uğraştığım için hani teknik olarak hani bakıldığında evet moodle güzel bir şey ama moodle MOOC olarak yapılmış bir yapı değil. Aslında uygun değil. Yani hani. Şöyle uygun değil u standart bir moodle dersi verecekseniz evet çok güzel olabilir. Bunun haricinde moodle'in çok büyük elden geçmesi gerekir. Hani yani açık kaynak olan kısmı ile moodle'in u size yetmesi yani bu tip bir projeye yetmesi bence mümkün değil. Bunun için ayrı bir altyapı yazılabilirdi (CT3).

- IE11'de videoların düşük çözünürlüklü gibi görünmesi
- Sözlük açıklamalarının alana sığmaması konusu
- Pdf download edilme durumu
- PDF ekran ilk açıldığında bloklu gelme durumu
- IE11'de videoların düşük çözünürlüklü gibi görünmesi
- Video ekranlarında sağ tarafta görünen beyaz çizgi
- Video eventleri nedeni ile seslerin kesilmesi durumu
- Transcriptler içerisinde arama yapılabilme
- Notların silinebilmesi
- Video çalma için kullanılan düğmelerin görme engelliler için okunaklı hale getirilmesi
- Sayfa başlıklarının header olarak tanımlanması
- İlerleme yüzdesi ifadesinin görme engelliler için okunaklı hale getirilmesi
- Klavye kısa yolları eklenmesi
- Engellilerin kullandığı aracın okuyamadığı image ların düzeltilerek araç ile okunabilmesi
- Sayfalarındaki refresh hatası problemi
- Moodle içerisinde Mobil ortamlara uygun çalışabilirlik için eventlerin değiştirilmesi
- Moodle'ın tek noktadan player'ı görmesi
- Transcript oluşturulması ve download edilebilmesi

Çünkü bizim playerden istediğimiz şeyler hani u CT'nin işte ve özellikle akademisyen arkadaşların hani şeyiydi hani u literatürde olan know how'tıydı. Hani bu iş nasıl yapılır, bu player nasıl olmalı? Yani hani işte alt yazı istiyorsanız normalde alt yazıyı kimsenin işte u bir şeye uygun istediğini düşünmüyorum. İı işte level bilmem kaçta uygun olacak. Hani uluslararası standartta uygun olacak. İşte yazılar sağ tarafta, şey menüler sol tarafta olacak falan gibisinden. Hani bir düzenlemeden geçirmek zorunda kaldılar. O normal playerlarını kullanamaz hale geldiler (CT3).

CT temsilcileri erişilebilirlik açısından önemli bir nokta olan alt yazı sornundan bahsetti. İlk 10 dersin etkieşimli ekranlarında, seslendirme metnine ek olarak alt yazısında olması gerektiğini belirtti. SWT1 HDMI5 ekranlarda belli bazı iyileştirmeler yapıldığını fakat bu revizyonların uygulanmasının çok zor olduğunu ifade etti. Buna ek olarak portalın nasıl kullanılacağını, derslerin nasıl alınacağını ve Moodle kullanımının anlatıldığı; "Oryantasyon Modülü" ile son kullanıcının bu konuyu anlayabileceğini belirtti (Course Production Planning Workshop).

..sonuçta kendi isteği ile gelecek bir insan. Ama orada izole olmamalı. Hani izole olmak isteyen insanlar da olabilir mesela hani ben sosyalleşmek istemiyorum o yüzden online derse geliyorum diyen insan da olabilir ama. Yine biz bu fırsatı verelim. O Yapmazsa yapmasın gibi (CT!).

Çünkü mutlaka sorusu olacak. Ne yapacak yani sorusu olduğunda adam? Dersi dinledi ve bir şey soracak. Kime soracak o soruyu? Yok öyle bir kurum yok yani (SME1).

Ben dersleri hazırladım. Böyle bir denize attım. Bir daha hiç bir haber yok derslerden. Yani hani onunla ilgili ne yorum geliyor, kaç kişi aldı, birisi olumsuz bir şey dedi mi ders için. İşte ne biliyim belki birisi dedi ki "ne kadar Teknik hazırlamış adam hiç bir şey anlamadık." Falan. Öyle bir şey var mı hiç bir şey bilmiyorum (SME1).

Ya dersin hocasıyla olmalı veya o konuyu bilen adamlarla olmalı. Ama adam oraya bir şey yazacak onun cevabı gelecek yani sonuçta. Merak ettiği şeyin. Özellikle de forumda gelmesi açık seçik daha iyi.. En ideali o kendi kendilerine halletmiş olacak o işi. Ben bilmeyeceğim işin içini. Oradan bilen biri diyecek ki ampülün şöyle şurasını yaparsan bu böyle yanar diyecek olacak o. Ya da diyecek ki işte ostimde hepsiburada da şu ampülden satılıyor, ondan al daha rahat yaparsın diyecek. Gidecek o da ondan alacak memnun kalacak yani sonuçta. Kimin verdiği önemli değil bilgiyi. Önemli olan adamın sorusuna bilgi alması yani. Şu bile yok mesela şimdi. Ben orada ışıklardan bahsediyorum. Ben bu ışıkları nereden alacağım diye soracağı bir yer yok yani. Sizin destek masası da bilmez onu (DT1).

Mesela başka bir tool kullansaydık vesaire öğretim tasarımı atıyorum eee yani diyelim ki senaryoları biz maillerle birbirimize belirli bir şablonun üzerinde hazırlanmış senaryoları maillerle yaptık. Onları cooperative olarak bir ortamda tutsaydık, o senaryoları orda edit etseydik eee ortak bir edit etme süremiz olsaydı belki katkıyı ortak sağlayabilseydik vesaire. Böyle şeyler yapsaydık diyecektim ki hani o sürece dair inovatif bir şey yaptık biz (QAT1).

Proje yönetimi açısından süreci zorlaştıran en önemli şey tüm sürecin projenin başından beri net olmaması. Ham içerikten üretim sonuna kadar tüm adımların net ve kişilere atanmış olmaması süreci kesinlikle olumsuz yönde etkiliyor. Ders sorunsuz bir şekilde üretilse bile portal a yerleştirilene kadarki süreç net olmadığından tüm süreç olumsuz yönde etkilenebiliyor (SWT3).

Sorun duzensiz yonetimdi (SWT2).

Yani mesela hani 100 ders şu kadar zamanda çıkar bize gelip de çok net bir şekilde bakın biz böyle birşey yaptık şu kadar ders bu kadar zamanda çıkıyor diyen yok. Daha önce bunlar da bunu yapmış bakın 3 araştırmada bu böyle söyleniyor ona göre bir planlama olsun falan diyen olmadı herşey el yordamı ile göz yordamı ile (PMT4).

Evet. yani ee iyi planlamamışlar. Ee yani e-derslerin nasıl geliştirileceğini ve bu sürecin aslında çok da kolay bi süreç olmayacağını hem kaynak açısından hem süre açısından olmayacağını öngörememişler (APS1).

Biz hani bir coursera olsak, çok büyük bir ihtimalle Coursera'nın bilmem neyin böyle bir sistemi vardır. İşte dersim ne aşamada ya da ne oluyor ne bitiyor falan diye. Ama hani bizde de bir tarafta zaman kısıtı vardı. Hani bunu oradan yetiştireceğiz yoksa böyle bir sistem oluşturulmalı mı? Böyle bir sistem nasıl olmalı? Bizim ihtiyaçlarımıza göre customize edilebilecek... Peşinden de koşulmadı açıkçası. Çünkü onunla uğraşılsa... Dediğim gibi projenin süresi biraz daha uzun olsaydı belki hani öyle bir şey baştan yapılıp sürecin takibi için iyi olurdu tabi ki (CT2).

Moderator katılımcılara, kalan 90 ders için paralel olarak bakıldığında aynı anda kaç tane ders üretilebileceğini sordu. SWT1 şu ana dek 6 ayda 10 ders üretildiğini fakat kalan süre göz önüne alındığında; kalan 90 dersin, 1 ayda 10-12 ders üretecek şekilde tamamlanması gerektiğini belirtti ve bunun bir kapasite sorunundan dolayı değil zaman kısıtı ve süreç sorunundan kaynaklandığını söyledi (Course development workshop minutes).

Proje kaynaklarını kullanma yetkisinin tamamen konsorsiyumda olması ve proje aktivitelerine ayrılan bütçenin dengesiz dağılımı proje çıktılarının kalitesini oldukça etkilemiştir. Örneğin, projenin görünürlüğüne ayrılan bütçe ile proje çıktısı olan 100 adet dersin geliştirilmesine (içeriklerin oluşturulması, senaryolaştırılması, seslendirmesi, gereken yazılım-donanım tedariği, üretimi, video çekimi, vb. ders süreçleri) yönelik bütçeden oldukça fazlaydı. Bu durumda, derslerin daha kaliteli üretimi konusunda bütçe problemlerinden kaynaklı sorun yaşanıldığını söylemek mümkündür. Öte yandan, CTun, ders geliştirme sürecinde ihtiyacı olacak teknik altyapı ancak projenin bitiminde sağlanmıştır. Proje çıktılarına yönelik kalite faktörleri proje öncesinde belirlenerek, özellikle bazı teknik konularda yapılacak harcamalar konusunda ortak karar alınmalıdır. Ayrıca, CTa sağlanacak her türlü araç gereç, yazılım ve donanım için süreç daha hızlı ilerlemelidir. Faydalancı ekip projenin başlarından itibaren, gerekli teknik altyapıya sahip olmalıdır (Lessons Learned Document).

bu projenin bütçesi hiç yeterli bir bütçe maalesef değil (PMT3).

Eee budget breakdownda onlar, sadece 100 dersin geliştirilmesine, toplam bütçenin %10 unu ayırmışlardı. O zaman şöyle, şu tür tartışmalar yaşamıştık. Ben de gündeme getirmiştım. Bunu projenin sonunu düşünerek getirmiştım. Bunu inception report un ekine koyuyorsunuz ama biz bunu kabul etmiyoruz. Ee çünkü kesinti yapmak gerektiğinizde her bir ders için 2800-euro gibi komik bi rakam oluyorlar 100 ders için...Ki bu çok, çok düşük bi maliyet, projenin toplam bütçesini düşündüğümüzde. Eee onun için yani toru biraz daha tasarlarken, yeni bir öğrenme toru projesi olursa, e-öğrenmeye biraz daha kaynak aktarılması gerektiğine dair torun içerisine, farklı yerlerine bunu anlatan detayların konulması gerekiyor (APS1).

Eş zamanlı çok sayıda içerik geliştirme gerekmesinin getirdiği yönetim zorluğu (SWT1).

Belki yöneticinin biraz daha işlerin icinden bakabiliyor olması süreci daha kolastırabilirdi yani sadece disardan ne bitti demek yerine hadi 3 gun kaldı 5 gun kaldı demek yerine ne yaptın nasıl yaptın demesi daha çok irdelemesi gerekliydi diye düşünüyorum (SWT2).

Yani PMT'nin organizasyon yeteneği biraz şeydi, beklenen düzeyin altındaydı. Daha bir sosyal birisinin, daha girişken birisinin, daha bir insanları motive edecek birisinin olması beklenebilirdi. Ekibi çok fazla motive edemedi. Ya tamam, teknik bilgisi çok iyi olabilir, bu işi kendi ülkesinde çok güzel uygulamış olabilir ama Türkiye'deki ekibi mobilize etme açısından çok fazla başarılı olmadı (CT6).

böyle bir süreç takip sistemi yok. Tamamen mailler üzerinden, hani bir portal var, o portalde yani, hakkı verilerek kullanıldığını düşünmüyorum. Hani, ben de ilk defa onu kullandım ama sadece biz oraya doküman yüklemek için kullandık (SME2).

işin hani bir proje yönetim yazılımının kullanılmaması da bu bir yazılım projesi olduğu için Zorluk...ciddi bir evet sadece bitrix olmamalıydı bizim şeyimiz, yani yazılım projelerinin yani bir yönetsel programı da kullanılmalıydı jira çok basit, çok küçük ücretlerle kullanabileceğimiz birşey İşlerin takibi de Kolay olurdu bölüm açısından, ben mesela her gün gelen bütün mailleri açıyorum bütün mailleri... Çok büyük bir mesai günde 3 saat falan ama ben mesela o mailleri açmadan orda bir proje yönetimi yazılımı kullansaydım işler insanlara atanıyor yapıldı yapılmadı kapanmayan maddelere sadece baksaydım beni ilgilendirenlere, yani çok daha kolay olurdu herkes tarafından(PMT2).

Basta olması gereken beklenen şeyler sonradan eklendiği için sil bastan oluyordu (SWT2).

tabi yani kervan yolda düzülür sistemi biraz uygun bir yöntem değil (QAT4).

Bir şeyin kalitesini oturtmak için öncelikle sürecini oturtman gerekir. Kaliteden bahsedebilmek için önce bir süreç olmalı ve o süreç tanımını düzgün işleyen bir süreç olduktan sonra kaliteden bahsedilebilir. Bu bizim projemiz içinde geçerli. Biz bu proje boyunca sürece oturtmaya uğraştık (QAT1).

Kalite personeli yine yeterli miktarda, 1 kişi 2 kişi 3 kişi değil, daha kalabalık bir grup, eee bu iş için tahsis etmeyi düşünürdüm (QAT3).

içerik uzmanlarıyla koordine eden birisi de yoktu bizde (QA2).

...yorumların mesela bi tane çalışma yürütücüsüne ya da başka bir ihale uzmanına yorum geliyor ama diğerinin bundan haberi olmuyor. Buranın asıl görevi o. Bütün her şey mesela başka bir projeye de bu yorum verilmişti ..başka bir OYS de bu yorum verilmişti. Bunu da burda göz önüne alın gibi bir şey.. Belki bir üst göz olabilirdi onlarda (QA Team de) (APS3).

Şimdi bizim konum itibarıyla...Üretici firmanın yanında olduğumuz için, bir şey olduğunda sürekli... Şimdi insan faktörü çok önemli burada, yüz yüze olduğumuz insanlar, hani çok fazla kavga boyutuna... Geçiremiyorsun yani, o insanlar yanında çalışıyor çünkü. Ama biz tamamen onlardan ayrı bir şekilde ve bağımsız olarak, objektif çalışabilseydik, çok daha belki iyi. Çünkü bir süre sonra işte biz de onların eksilerini, artılarını öğrendiğimiz için biraz yorumlarımız da ister istemez şey oldu yani. Objektif olamamaya başladı. Yani mesela yapılmayacağını bildiğiniz şeyi, Yazmamaya başladık. Çünkü biliyoruz o firmanın yeterlilikleri bu kadar. Ama bu normal şartlar altında şimdi...(QAT2).

Yani ilk bakış açında, çünkü beklediğiniz anda karşı... hani.. eee... bi yere "paper" gönderdiğinde de "review" geldiğinde önce bi "reject" mi "minor revision" mu gör, bekle, biraz sindir o cevabı ondan sonra "review"lere bak o hesap yani, biraz sindirmek anında tepki göstermemek daha faydalı olur. Ama ben kendi adıma şunu da gördüm. Hani onu görmek istemiyor insan. eee. hani... bir "revision" olduktan sonra hatta içerik, ham içerikte yurtdışına gidip gelmesin diye, ben Azad'ı da biliyorum, bi çok "review"leri, söylenilen "review"leri kendimiz yaptık. Yani kalite kontrolcü olmamıza rağmen. Yani yapıldıktan sonra net bi tabloyla, baştan başka bişeyler daha istendiğinde bu hoş bi ortam değil yani. Bu doğru bi yöntem değil(QAT3).

...hani bizi yoran neler olmuştur: belli bir sıkışık zaman içerisinde rollerimizin de çok değişmesi, yani bi yandan işte SME lik, kalite kontrolörlük yap, hadi içerik de sende olsun, belki işte senaryoda da düzeltme yap, ek materyalde. E tabi bu biraz yorucu oluyor (QAT4).

Projede görev alan tüm uzmanların yetkinliklerinin ve adanmışlıklarının beklenen düzeyde olmaması proje yürütme sürecinde uzman değişikliğine ve uzman sayısının artırılmasına neden olmuştur. Projede görev alan tüm uzmanlar yüksek düzeyde yetkinlik ve adanmışlığa sahip olmalıydılar. Proje sürecinde yeterli sayıda uzmanın aktif şekilde görev alması sağlanmalıdır (Lessons Learned Document).

a asıl sorun E-Learning Company'nın da az personel ayırmasıydı (APS1).

öğretim tasarımıyla ilgili süreç tanımlamalarında yapılacak birşey daha doğru insanlara daha net görev tanımları (PMT2).

Farklı insanlardan farklı mailler geliyor hani. Bir de şey oluyor mesela bir mail geliyor hani insan şey diyor hani bununla ben mi ilgileneceğim bununla kim ilgilenecek hani bu kime geldi bu mail. Bazen o konuda şaşıyorum yani hani bunu kim yapacak (CT1).

içerik uzmanlarıyla koordine eden birisi de yoktu bizde (QAT2).

Orada da dediğim gibi o ekibin o konu başlıklarıyla ilgili kendisinin uzmanlığı olması lazım. O ekipte o uzmanlık var mıydı? Ya da o ekip o uzmanlarla çalışıp o içeriği çıkartacak kadar yetkin miydi, o şekilde koordine edilmiş miydi? O problem orada diye düşünüyorum (QA1).

Onların öğretim tasarımı sürecinde karşılaştığı zorluklar... Birincisi konsorsiyumun şeyi hiç bilmemesi: online içerik geliştirmemesi. Konsorsiyum daha önce de çalıştığı şeylerin yani o uluslararası partnerler kağıt üstünde iyi görünüyordu ama biz uluslararası partnerlerden destek alamadık (CT6).

Yani dediğim gibi Bilgelş Projesinde bazı faaliyetler ee diğer projelerde olmayan yani mesela şeyler var: hackathon..gibi şeyler.... Burdaki çoğu insan ya hackathonun İngilizcesini bulamadım bir türlü ne demek diye soranlar oluyor çünkü.. hani zaten çıkmıyor turengde hackathon.. En son geçen baktık da bişeyden dolayı.. ee hani faaliyetleri bir ICT projesi olduğu için farklı(APS3).

Hani dediğim gibi şimdi içerik yazan başkası, işte içeriği kontrol eden bir başkası, içeriğin yazılımı sonra geri feedback verdikten sonra işte sonradan kalite kontrol grubu çıkardılar o başkası. Yani bu adımlar arttıkça tabiki projenin yönetimi de zorlaşmaya başlıyor. Öbür türlü şey yaparsınız 10 tane sabit elemanınız vardır. Proje sürekli bu 10 sabit eleman arasında dönüyordur. Burada öyle değil. Biz sadece ocu kısmında 6 kişiyiz. İşte kalite kontrol kısmında 5 kişi daha vardır. E zaten 100 ders demek 100 farklı içerikçi demek oluyor, içeriği yazan kişi demek oluyor. Hadi işte Microcontroller 1, 2, 3 'ü aynı kişi yazmıştır desek en fazla 60 kişi olmuş oluyor. Yani hani normalde 10 kişilik bir ekibiniz varken 100 kişilik bir ekibe çıkmış oluyorsunuz belki de yaklaşık (CT3).

Yani şöyle en başında bir, mutlaka her projenin en başında işler birden böyle pıtır pıtır akmaya başlamaz, bir alışma süreci olur. Ama onu paralel yaparsak, o alışma süreçleri paralel giderse aynı anda yine yani nasıl deyim? doğru cümle gelmiyor aklıma, aynı anda başlarsa daha birlikte giden...Daha iyi giden, senkronize giden ve daha faydalı şeyler çıkabilir. Ama burada şöyle oldu; yani sürekli şey değişti sistem değişti. Geldik geldik bir şeye alıştık başka birileri geldi. Geldik geldik bir şeyler yaptık. Başka birilerine kendimizi anlattık. Başka birilerine anlattık. Başka birilerine anlattık QAT2).

Dolayısıyla yani çıkan sonucu şöyle yapacaksınız yani siz şöyle bir bakalım, o mantıkla gitti her şey. Bütün proje o şekilde gitti. Hele bir bakalım, hele bir yapınlar bir görürüz falan filan sonra söyleriz (SME2).

örneğin sürece dahil olan, daha sonra dahil olan, daha önce dahil olan insanların ciddi bir oryantasyon gerekliliği duyuluyor (QAT3).

Kim çalışacak, A firması çalışacak. A firması kendi mi yapacak? Hayır, o zaman A firması outsource edecek, B firması çalışacak. E o zaman daha çok bekleyeceksin (QAT1).

Bizim projede örneğin 78 tane ders E-Learning Company'nın benim oradaki herkesle en büyük mücadelem dedim ki eğer bu 22 dersi başkasına veriyorsak lütfen bunun yönetimini E-Learning Company'ya verelim aksi takdirde vereceğiniz her bir firmada benim bu projeyi bir proje bilgelş yönetiyorum her bir kişi için benim proje yöneticiliği yapmam gerekiyor dedim bu benim çok ciddi zamanımı alacak ve diğer yapmam gereken işleri zorlaştıracak dedim ama o öyle olmadı ee E-Learning Company'nın yönetimine verilmedi 22 tane derste 7 tane yönetici her birisi ayrı bir proje onlar yönetiyor yani işi ne kadar parçalara bölerseniz eee çok düzgün işleyen bir sistemiz de yoksa o işi delege etmek ve sürdürmek işi yavaşlatıyor ve geriye çekiyor yani biz işi parçalara bölüyoruz ondan sonra bir yere geldik kurtarmak için bir model önerdik ama orda da firmalara böldük firmaların altında onu yürüten parçalar birdaha bölündü ağırlığı ve şeyleri düşünebiliyor musun parça parça parça parça ve bunlar yönetiliyor (PMT2).

Bu projenin de kendi dinamikleri var ve o dinamikleri değiştiremiyorsun ve ona göre aksiyon alman şekil alman gerekiyor. Bunun olumsuz etkilediği nokta olmuş olabilir (QAT1).

Proje planında ders üretimi için ayrılan süresinin uzamasının bir nedeni daha var. Yani bu ülkedeki e-öğrenmenin şeysi belli, e-öğrenme sektörünün ebadı belli, çalışan şirketler belli. Ya şöyle söyleyeyim şimdi biz en baştan yeniden MOOC tasarlasak, (yeniden bu işe girsek, yeniden en baştan tor yazsak inan bana bazı problemleri bertaraf edemeyeceğiz. Belirlediğimiz ve yaşadığımız bazı problemleri bertaraf edemeyeceğiz. Bunların çeşitli toplumsal, ekonomik vesaire sebepleri var. Onun yani işte sektörün kendi iç dinamiklerinden kaynaklanan vesair sebepleri var. Eee dolayısıyla hani ve de hatta bambaşka yeni problemlerimiz de olacak belki (QAT1).

APS3: hani bu tarz projelerin ne bileyim biraz daha elimin altında olmasını istediğim projelerin daha farklı şekilde tasarlanması belki daha uygun olabilirdi. Hani bu kadar açık uçlu değil de kimin yapacağı değil de yani kimin yapacağı belli değil burda. yani geldi okuldaki bir öğrenci içerik hazırladı... yani bilemeyiz...onun gibi bir şey oluyor burda uzmanların şey olması. Belki hani fee based bir şey olsa daha başka olabilirdi ama hani içerik hazırlanması şey çok daha fazla olduğu için bu global e girdi diye düşünüyorum.

APS3: Tabi tabi. Etkileyen bir şey.. biraz daha fazla özgürlük bırakıyoruz karşı tarafa(globalde). Fee based de, biz daha darlıyoruz (proje yönetimini)..... sanki ipler biraz daha elimizde.

I: Dolayısıyla çalışacak kişilerin yapabileceği işin kalitesi vs bile biraz firmaya kalıyor, öyle mi?

APS3: Aynen, çıktıyı sağladıktan sonra sen bunu niye onunla yaptın diyemeyecek bir konumda olacaksın çünkü.

Yani daha önceki projelerde para bize gelir, işte bizim buradaki bütçede durur, biz harcarız, alımları biz yaparız falan filan... Halbuki burada bize gelen herhangi bir bütçe, yani üniversiteye gelen herhangi bir bütçe yoktu. Harcamaları biz yapmıyorduk. Bu tamamen farklı bir türde çalışan bir projeydi. Finansal açıdan... Ondan sonra yönetimi açısından, ekiplerin kurulması açısından. Tübitak'ta, diğer AB projelerinde falan daha farklıdır. Üniversiteye gider, her şeyi kendin yaparsın. Ama İPA'larda her şey farklıymış, onu gördük. Bu açıdan deneyimsizliklerimiz vardı. Neyi nasıl yapacağımızı tam olarak bilmiyorduk (CT2).

Süreci daha detaylı planlamak... Başta hani tor yazılırken planlamak gerekiyordu. O sonradan çünkü bizim başımızı ağrıtan bir şey oldu. Biz biraz daha detaylı; işte adım adım şöyle olsun, böyle olsun falan daha detaylı yazmıştık mesela. Ama bize tor tavsiyesini veren arkadaş o kadar detaylı yazmayın, daha genel olsun. Başvuracakların yaratıcılığını sınırlamasın falan demişti. Biz onu makul gibi görmüştük ama meğerse yanlış bir şeymiş. Hatta belki daha da detaylı yapmamız gerekiyormuş. Bizim koyduğumuz detaylar bile azdı. Onları daha detaylı yapıp, ne beklediklerimizi daha detaylı yapsak, süreçte daha az başımız ağırır gibi gözükiyordu. Bu vardı ama ne bileyim, o süreçte işte taleplerimizi isteyip, karşı tarafın taviz vermesi... Bizim biraz taviz vermemiz şeklinde bir yere getirildi. Çok istediğimiz bir yer olmayabilir ama kötü bir yer mi? Çok kötü bir yer de değil. En azından kabul edilebilir bir seviyeye, kavgaya dövuş de olsa... Daha doğrusu kavgaya demeyelim de, karşılıklı negotiation ile getirildi. Yani dediğim gibi, süreci en çok etkileyen şey istediğimiz şeylerin çok detaylı konmaması (CT2).

Proje öncesi hazırlık döneminde şartname (ToR) faydalanıcı tarafından, yenilikçi ve yaratıcı tekliflere açık kapı bırakacak şekilde hazırlanmıştır. Fakat edinilen tecrübeler göstermiştir ki, gelen teklifler birebir şartname referans alınarak hazırlanmıştır. Faydalanıcılar, şartnamelerini hazırlarken istediklerini tüm detayları ile açık bir şekilde belirtmelidirler (Lessons Learned Document).

AB regülasyonu açısından sürdürülebilirlik ile ilgili madde içerisine konamıyor ama bilmiyorum hani nasıl bir strateji yapılabilirdi u ama öyle bir şeyler düşünmeye çalışırdım. (CT2).

benim düşüncem projenin eksiği maintenance. Yani şimdi proje software geliştirmede, yazılım geliştirmede maintenance en sonda yer alır. Bunu ister spiral yapın u spiralde yaptığınızda ortalarda da bu çünkü her prototip geliştirdiğinizde bir maintenance olmaya başlar. Hani bu projenin o kısmı proje teslim edildikten sonra 3 yıl - 5 yıl bir desteği olacak mı? Belli değil. Hani şimdi şimdi şöyle firmalar açısından da mesela siz başbakanlığa bir proje yazarınız. Sonra bir tane elemanınızı başbakanlığın içerisine gönderirsiniz 6 ay. Çünkü 6 ay boyunca bir sorun oluştuğunda ilgilenir, çözer ya da git gel yapar (CT3).

Proje tamamlandığı anda sürdürülebilirlik için bir kaynak kalmamaktadır. Devlet kurumlarının bütçe kalemleri nedeni ile proje tamamlandığında sürdürülebilirlik için kurumda ayrılmış bir bütçe bulunmamaktadır. Proje bütçesinde projenin bir süre kendi kaynakları ile sürdürülebilmesini sağlayacak bir bütçe bulunmalıdır (Lessons Learned Document).

Dolayısıyla birinden de danışmanlık almamız, destek almamız da mümkün değildi. Toru yazarken aldık, sağolsunlar, geldiler, idari süreçlerle ilgili bilmem neleri yazdırdılar. Yok dissemination (13.23) şöyle yapılmalı, şöyle tanıtın bilmem ne. Onlar için destek aldık ama projenin esas core kısmı için destek alamadık. Onu biz kendimiz oluşturmaya çalıştık. Hem yönetsel açıdan destek alırken, bir eğitim gibi daha ayrıntılı bir şey almak bir yandan da yapacağımız iş ile ilgili daha büyük bir destek almak gerekir mi tor aşamasında? Tabi, projenin her aşamasında gerekli. Sadece tor aşaması için değil. Her projede akvaryumdaki balıklar gibi düşünmek gerekiyor. Biz projenin içinde olan kişiler akvaryum içindeki balıklar gibiyiz. Suyun içinde bir pislik varsa onu da farkedemezsin. Onun için dışarıdan birisinin bakması bu projenin başında... İşte şartnamesi yazılırken, başlarken, derlenirken dışardan birinin gelip ne oluyor ne bitiyor burada, ne yapıyorsunuz diyip kritik bir şekilde desteklemesi her türlü büyük projede olması gereken şeylerden bir tanesi. Hani o başka projelerde de danışmanlar falan vardır mesela. İyi bir danışmanın varsa gelir sana 2 saat bakar bir şeyler söyler. Kafanda senin yeşil ışık yanar. Onun için kaliteli bir danışmanla, konuyu iyi bilen birisiyle işin içine almak lazım (CT2).

Ondan sonra içerideki grubun mali olarak desteklenmemesi, mesela bu yine daha önce öbür projelerde olmayan bir şeydi. Beneficiary olarak, bununla ilgili herhangi bir ödeme yapılmaması...Motivasyon düşürücü bir etmen. En azından içerideki grupta o kadar olmadı ama öyle bir şey olsaydı, ne denir, bi artısı olsaydı iyi olurdu. Daha iyi olabilirdi (CT2).

yani genelde üniversiteler yaptığı projelerden de bir şekilde de şey alırlar..çalışan hocalar ücret alırlar..işte bir karşılık alırlar.. bu bizim ab projelerinde yararlanıcıların herhangi bir maddi karşılık alma herhangi bir ücret alma karşılığı... imkanı olmadığı için farklı bir süreçti ama bütün bunlara rağmen.. CT çok profesyonelce yaklaştı (APS1).

Evet motivasyonsuz iş yapmak çok zor hani eee burdaki insanların bu işi biz bundan para kazanıyoruz mesleğimiz. Sizin ayrı bir işiniz ve mesleğiniz var, bir taraftan da bununla ilgilenmel zorundasınız. Hani bunun çok motivasyon

düşürücü olduğunu düşünüyorum. Hani mesela bir sonraki projede bilmiyorum tabi conflict falan işleri var..Maalesef çok kötü ama hani bu kadar emek veren kişilerinde başka bir şekilde belki motive edilmeleri gerekiyor (PMT4).

..ondan sonra sizin hali hazırda o kadar işleriniz olması, olmasıyla bu kadar ağır bir yazılım projesinin içine dahil olup kontrol mekanizması olmanız ve bu kontrollerin de çok kritik, hani gizli de arka tarafta çalışan bir sistem değil çok göz önünde bir sistem böyle bir sistem de kontrol ediyor olmanız ve onun verdiği yük, size yüklenmesi oda artı bir sıkıntı(PMT2).

Hani, şey olmamalı mesela böyle o da beni çok rahatsız etti. Hani şey onaylaması için baskı yapmak (QAT2).

Onlar adına da çok büyük bir stres oluşturuyor. Şimdi herkesin ismi geçiyor yani, o isminden lekelenmesinden herkes biraz rahatsız oluyor ki haklılar da yani. Ben orada olsaydım ben de aynı şeyi yaşırdım yani (SME2).

Faydalanıcı açısından, konsorsiyum tarafından hazırlanan her türlü belgeyi sağlıklı bir şekilde kontrol etmek oldukça büyük bir iş yüküdür. Proje yürütücüleri (bakanlık) tarafından incelenmesi gereken belgelerde dahi, faydalanıcı ekibin hem teknik hem de yönetsel açıdan kontrol sorumluluğu olması zaman yönetimini zorlaştırmıştır. Projenin sağlıklı uygulanabilmesi ve süreci yönetebilmek açısından, proje yürütücülerinin proje konusu ile ilgili ön çalışma yapmaları, benzer projeleri incelemeleri ve faydalanıcı ekip ile daha yakın iletişimde olmaları gerekmektedir. Proje raporlarının onay süreci için, en büyük sorumluluk yönetim ekibinde olmalıdır (Lessons Learned Document).

Bilmiyorum bana hani şey ODTÜ olması gerçekten hani yük, sorumluluğu çok yüksek onun (CT5).

Yani onlarda şöyle bir şey, şimdi onlar da ya şimdi herkes kendi sorununu düşünür. Ben bu işi onaylayacağım ama nasıl vicdanım el verir? Şimdi son çıkan şey hiç kimseyi tatmin etmedi. Yani çoğunlukla herkesin aklında bence şöyle bir şey kalmıştır. Yani, bu çok daha güzel yapılabilirdi aslında bu bilgimizle bu yetimizle. Yani ODTÜ bu işin içerisinde, yani çok daha farklı olabilirdi diye düşünmüşlerdir diye düşünüyorum. Şimdi gelen, mesela diyelim ki bizim tarafta Bilgelş tarafında veya işte sizin tarafınızdaki arkadaşlar ellerine geçen bu şeyin ya 100 üzerinden 40-50 etmeyeceğini gördükleri zaman onların canı sıkılıyor. Senaryo aşaması sırasında ve diğer aşamalarda da ama işte çok çabuk, çabuk çabuk olunca tabi mecbur...Onlar adına da çok büyük bir stres oluşturuyor. Şimdi herkesin ismi geçiyor yani, o isminden lekelenmesinden herkes biraz rahatsız oluyor ki haklılarda yani. Ben orada olsaydım ben de aynı şeyi yaşırdım yani (DT2).

Mesela o açıdan da yüzyüze iletişim önemli ama... Mesela bilişim teknolojilerinin bize verdiği önemli avantajlardan birisi de bunun asynchrone olarak sonra offline'da da devam etmesi. O açıdan da genellikle tamam biz ayda bir toplaniyoruz ama sonra o iletişim elektronik ortamda da devam ediyordu. Dolayısıyla bütün iletişim kanal channel'larının açık olması gerekiyor. Tam spesifik case'leri hatırlamıyorum ama biz nerede problem yaşadysak aslında oradaki iletişim probleminin kaynağınmıştı sorun. Yani benim hatırladıklarım bunlar. Yüzyüze bir araya gelmek mesela önemli. Çünkü aralarda iletişim tonunun, asynchrone ortamdaki iletişim tonunun insanlar tarafından yanlış algılanması veya işte bir tarafın tonunu ayarlayamaması gibi nedenlerden çıkıyordu. Dolayısıyla proje bağlamında da konuşacak olursak kesin bir yüzde veremem ama o projenin içindeki major bir kısım iletişim sorunları üzerine kurulu (CT2).

Yani uzaktan öğretim ya da içerik geliştirme için. Ki biz bunu bakanlıklara da yaptık öyle söyleyim. Özel şirketlere de yaptık. Hani bazen kurumlar farklı tarz çalışır gibi bir algı olur. Kesinlikle öyle değil. Bu proje bunu gerektiriyor, böyle çalışmamız gerekir dedik. Biz hep karşı tarafın bir proje temsilcisi, proje yöneticisi nasıl tarif edersiniz edin ama bir contact kişimiz olacak. Bu contact kişi bize aaa işte mail gönderme, mail cevap verme değil. İşin içinde olacak, konuyu bizimle birebir, dirsek dirseğe çalışacak şekilde. Demin dediğim gibi iletişim çok önemli burada (DT3).

Mesela, o tarz zengin içerikli ürünü oluşturabilmek için kesinlikle eğitim ekibi, ürünü hazırlayanla, ürün konusunda bilgi sahibi olan kişilerin bazen yüz yüze çalışmaları gerekiyor, çünkü o tarz şeylerde çok fazla yanlış anlaşılmalara olabiliyor. Çok da oldu zaten (QAT2).

Hadi kendi içimizde e-maile görüştük fakat e-maile konuştuğın zaman, hiçbir zaman beşeri karşılıklı oturmak gibi olmuyor. Cümleler daha sert anlaşılıyor. Kişiler daha uçlarda yorum yapıyor. Küskünlükler daha kolay oluşuyor. Şeyle ilgili, konsorsiyum ile hoca arasındaki iletişimde de hatta, bazı aralar gerginlikler oldu (CT6).

Herbirinin ayrı ayrı tarzını öğrenmemiz bi de herbiriyle ayrı bir iletişim kurmamız gerekti. Şöyle ki mesela birtanesi şey yapıyor. Ee.. mail atıyor, gönderiyor. Bi tanesi işte telefonla şey yapıyor arıyor böyle böyle yapsak.. biri diyor ki geleyim bi yanınıza konuşalım. Hadi gel tamam sen de gel... ondan sonra öbürü şey yapıyor.. öbürü aslında kalite ekibine gönderiyor.. kaliteciler bize gönderiyor falan böyle. Neye nerden, kim nerden geliyor.. hangisine biz ne zaman bakıcaz. Onlar bile bi yere karıştı yani (CT5).

İşte diyorum ya şey de çok fazla paydaş var mesela. Dolayısıyla o kadar insanın bir araya gelmesi kolay da iş değil (QAT1).

Ben hani ben hep söylüyordum ya 100 ders demek 100 farklı kişi ile muhattap olmak demek (CT3).

Ya e- mail trafiğimiz çok fazla cidden hani. Mesela bazen diyorum hani bugün mail gelmedi. Sonra bir saat bir bakıyorum arka arkaya 8 tane mail falan geliyor. Çok fazla mail geliyor. Bunun kontrolü de çok zor bilmiyorum hani (CT1).

Toplantılardan hiç verim alabildiğimizi düşünmüyorum (CT6).

toplantılar sorun çözmeye yarıyordu. Sorun çözmeye yerinden ziyade hani sorunları biz sorunları anlatıyorduk. Maillerde sorunlar birikiyordu veya dersler geliyordu maillerle o sorunlar birikiyordu. Biz orada biriktirdiğimiz şeyleri toplantıya götürüp sunuyorduk. Diyorduk ki bakın bakın böyle şeyler var. Siz bunları yapmamışsınız veya siz bunları yapmışsınız biz de böyle şeyler yapmışız. Sonra o toplantı bitiyordu. Toplantıda tamam küçük küçük kararlar alınıyordu falan ama. Eee en çok alınan karar toplantı kararıydı yine. Toplantılarda toplantı kararı alıyorduk. Ee işte hani APS geldiğinde belli başlı küçük kararlar alınıyordu da geri kalan her şey mail üzerinden yürüdü. Yani nasıl söyleyeyim bilemedim. Yani maillerimiz çok didaktikti, toplantılarımız da çok ...Genel böyle samimi bir havadaydı yani (CT4).

sonra her grup zaman darlığından birbirine sarmaya başladı. İste sen iyi içerik yapmadım, yok senin moodle in çalışmıyor, yok o doğru sen iyi control edememisin dersen sonunda proje bitti (SWT2).

Bunu şöyle yapabiliriz kadar böyle detaya girebilecek veya yardımcı olabilecek bir şekilde ama nispeten çok daha böyle beyefendi bir şekilde, hani takıldığımız yerde incitmeden, rahatsız edici bir şekilde konuşmadan, ya bunu böyle yapmışsın ama bu böyle olmaz tarzı. Buna dikkat edebilirsiniz seviniriz falan gibisinden. O hatayı ikinci de, üçüncü defa da yapmış olabiliriz çünkü çok karmaşık bir ortam (DT2).

Yani standartla belirlenmiş olması da yetmiyor, ee, sonuçta aynı dili konuşmak adına, bazı şeylerin set edilmesi gerekiyor (QAT3).

Basitmiş gibi görünen revizyonların teknik olarak çok zorlayıcı olduğunu zaman zaman anlatılamayacak olduğunun bilinmesi (SWT1).

Hani şey birimler arasında herhangi bir iletişim yok. Yani içerik tamam belki bir yerden içerik alıyorlar dışardan da. İçerik alanla işte storyboardu yapan storyboardu yapanla ders üretimini yapan işte ne bileyim player güncellemesini yapan adamın arasında hiçbir yerde böyle bir iletişim yok. Aynı yerde çalışıyorlar ama herkesin başka bir şeyi var (CT4).

Her projede olanlar: zaman, bütçe. Bu projeye özgü bir sınırlılık yok. Fakat bunların tüm taraflarca kabul edilmesinde bazı sıkıntılar olmuş olabilir (SWT1).

Onlar da kendi özel sektör deneyimlerinden dolayı bu işi daha çabuk ve kolay halledeceklerin düşündüler. Çünkü karşılarındaki “müşteri” onlar için her zaman zaten bu işten anlamayan sadece mesela müşteri memnuniyetiyle ilgili bir eğitim istiyor..müfredatı belki veriyor.. sadece bunu e-öğrenme haline e –ders haline çevir.. bunu koyalım ve zaten o müşterinin de kendi çalışanları da orda ders almak zorunda olduğu için kalitesi de insan kaynaklarının değerlendirip almak zorunda olan binlerce ya da yüzlerce insanın da gelip o dersi tamamlamak zorunda olduğu için ofluya pufloya tamamladığı dersler olduğu için ... E-Learning Company da bu süreci.. Öngöremedi...(APS1).

Sadece akademik bilgi ile hareket edilmesiyle, pratikteki işleyiş konusundaki tecrübeler kaçmış olabilir (SWT1).

Akıllarındaki düşündükleri şey neyse şimdiye kadar hep yaptıkları şey neyse onu yapmaya çalıştılar. Dolayısıyla onların hani geçmiş deneyimi tabi ki çok etkiledi. Hatta onların ki daha çok etkilemiştir bizimkinden çünkü asıl üretimi onlar yaptığı için onlar daha çok şekillendirdiler süreci. Bizi de kendilerine uyudurmaya çalıştılar. Dolayısıyla, beklentileri geri çekmek konusunda başarılı oldular açıkçası. Yani şimdi bilmem ne falan noktalarında vazgeçtiğimiz çok yer vardır (CT5).

yani CT biraz daha işin kalitesiyle ilgileniyo, diğer taraf da işi bitirmeyle ilgileniyor.. hani..bişey yapıyorlar işte tamam olmuş bu ya bunu yapalım gönderelim diye...ama diğer taraf tabi ki dersi onay verecek olan da CT. Açık açık yazıyor zaten sözleşmede. Hani o okey demedikçe sözleşme sınırları içerisinde tabi ki atıyorum çok faiz bir şey istersen tabi ki o zaman da hani diğer taraf açısından Kabul edilemez. Sözleşme sınırları da içerisinde şey gene makul şeyler istendiği sürece yapmak zorundalar. Ama dediğim gibi onlar biraz daha eee kar amacı güden firmalar olduğu için

hani bu bir hibe projesi değil sonuçta. Bi teknik yardım ben ondan hizmet alıyorum o bana ürün sağlıyor ben işin doğru yapılmasıyla ilgileniyorum. O işini yapmakla ilgileniyor. Bu tarz. (APS3).

Yapılan çalıştaydan çıkan sonuçlar tartışıldı. Zaman planlaması hakkında taraflar problemlerinden bahsetti; Zaman kısıtı göz önünde bulundurularak, storyboard dan sonra üretim sürecinde akışı değiştirecek veya konu uzmanına geri dönmeyi gerektirecek revizyonlar olmamalı (17.08.2017 Course Production Planning Workshop).

Evet, yani bir zaman sonra şey olmaya başladı işte. Eeee, bizim iş yükümüz arttı. Karşı tarafın iş yükü arttı. Biraz vakit kaybettik falan derken işte ilk başta yazdığımız standartların altına düşmeye başladık. Yani tamam olmazsa da olur ne yapalım falan demeye başladık. Hani tamam isteklerimiz böyleydi ama yani ne diyeyim karşıdan o istek karşılanmıyor bir türlü. Bir söylüyorsun, iki söylüyorsun, üç söylüyorsun. Ondan sonra olmuyorsa da olmuyor diyip. Bu şeye dönüşüyor hani ee bir nevi oto sansüre döndü bir zaman sonra bizde. Biz de işte ne bileyim storyboarda, şeylere derslere veya herhangi bir şeye bakarken artık bunu zaten yapmazlar, bu zaten olmaz dediğimiz şeylere hiç onunla ilgili yorum bile yazmamaya başladık. Herhangi bir şey söylememeye başladık. Yani bildiğin oto sansüre çevirdik yani durumu (CT4).

Gecikme yaşanmasının nedeni, hani bi ortak beklentileri bulup orda uzlaşmaktı...Yani sizin beklentiniz burada çok yüksek.10 birim bekliyorsunuz, firma 2 birim üretiyor, sizin yorumlarınıza bakıldığında (APS1).

QA1: Beklentiler açısından aynı noktada olmak.

PM3: TOR'a sadık kalarak süreci hızlandıracak kararlar almak.

SWT1: Aynı noktaya bakmak süreci hızlandırmak.

SWT5: Nisanda 100 eğitimi teslim edebilecek kararları almış olmak.

ELT Presenter: Projeden yüzünüzün akıyla çıkmak için...

IT expert: Orta yol bulmak.

CT4: Asgari bir kalite standardı yakalamak.

CT5: Bize daha yakın olan bir ortak noktada buluşup anlaşılması.

CT2: 100 dersi çıkarabilecek kararları almak.

APS3: Yol haritası belirlemek, kolaylaştırıcı kararlar almak (17.08.2017 Course Production Planning Workshop)

CT beklentilerini daha açık ifade edilmiş olsaydı, karşı tarafın neler yapabileceği, karşı tarafın kapasitesi de bur da önemli. Onlar hani yaparız, yapamayız işte şunu öyle yaparız vs. gibi şey yapsalardı belki daha iyi olabilirdi hani (CT7).

Hani “ben yaparım, hepsini yaparım” bu yazılımda en kötü laftır. Biliyorsun: “Biz hepsini yaparız”. O zaman şöyle oluyor: bazı yapılamayacak maddelerde de “Biz bildiğimizi yaparız” oluyor. Bazısına da “Yaptık deriz” oluyor (QA4).

özellikle bazı arkadaşlar “güzel bir şey olsun ama ben de bilmiyorum bakalım. Bir getirin bakalım, güzel bir şey yaparsanız biz de okeyleriz” diyor. Ya bu böyle olacak bir şey değil. Yani örneğini verirsiniz, dersiniz ki ya bu böyle olması lazım. Konuyla ilgili, yani cad/cam ile ilgili ben şöyle bir ders görmüştüm. Ya bunu yapabilir miyiz? Ya yardımcı ol. Zaten elde kalacak iş. Öyle bir adım at yani, ama herkes biraz kendisini koruma amaçlı, ben buradayım karşı taraf bunu yapmalı (SME2).

... en azından adamın eline bir guide vermek lazım...Seslendirirken şöyle yapın veya şurdaki insanlar seslendirmek için uygun olabilir. Şu siteler kullanılabilir hatta ben para da vermedim soundlarada çünkü bir ay şeyi vardı trial versiyonu vardı. Yani hiç para vermedim. Üye oldum. İndirdim indirdim kullanacağım şeyleri (SME1).

Şöyle yapardım. Bir. Technical aspectleri en baştan belirlerdim. Standart. Videoda ne kastettiğimi belirlerdim. Yeşil ekran kullanımı, talking cat, elini kolunu nereye koyacak, ses kalitesi, kamera açıları... Hepsini belirlerdim. Hatta kullanılacak malzemeye kadar belirlerdim. Örnekleri verirdim. Hani şuna benzeyecek diye. Çok net olurdu. Ondan sonra bir ders geliştirmek için gerekli minimum takımları oluşturdum. O takımların bir araya gelmesi için gerekli olan toplantıları... Yani 100 tane ayrı şey belirlerdim. Modül. O 100 ayrı modül bir dersin...Belki iki ayrı konsorsiyuma verirdim. Yarıştırırdım birbirleriyle (CT6).

Tüm senaristleri alıp eğitime götürdük. Bir hafta sürdü...Prodüksiyonlara aynı şekilde... Yani, bizim 2000, 3000 videomuzda onu yaptık yani, hepsini eğitime tuttuk. Senaristleri, işte prodüksiyondaki arkadaşları şunları, bunları. Aynı dili konuşmak için (SME2).

..yapılması gereken herkese projeyi anlatmak. Projeden kastım yani bizim projemiz bu, ders hazırlanacak. Bu dersler böyle olmalı. Şöyle olacak işte o belirlediğimiz standartlar var. O belirlediğimiz standartları aslında biz çok genel belirlemiştik. Dersler için de dersler böyle olmalı. Derslerin teması olmalı, şu olmalı diye herkese anlatmak (B4).

Ya arkadaşlar biz 1. Bölümde şunları şunları gördük. Bundan sonra herkes bunu yaşamasin diye bir ortak hafıza oluşturulur. Yani, benim raspberry pi da edindiğim şeyi, bir başkası photoshop da yaşamıştır. Ondan sonra, bunlar alınır yine çok bir şey değil. Yine bir hafta sonu 300 kişiyi çağıracağınız bir şey. İnanın çok maliyetleri de yüksek olmaz yani. O seminerde herkes birbirini anlar. Karşılaşılan hatalar görünür. Yine, gidilir 2. Part çalışılır. Ondan sonra zaten o oturmuş olur. Çok daha az şey yapmak zorunda kalırsınız. Yani, bir sorun yaşayacağınızı sanmam (P2).

Bence örnek bir ders hazırlanabilirdi ilk başta. Yani onu da aslında önermiştik toplantılarda. ..Yani örnek bir ders hazırlansın. Biz onun üzerinden şey verelim şöyle şöyle olsun diye. Bundan sonraki bütün dersler de buna benzer şekilde olsun. Yani en mantıklı şey aslında oydu veya yine de hani ilk on dersin şeyinde sonra bir Yani tamam iki ay kaybederdik ama altı ay kaybetmezdik veya bir yıl kaybetmezdik (CT4).

Belki en başında proje başlamadan önce belli standartlar daha açık ve net yazılıydı daha iyi olabilirdi. (CT7).

Mesela şöyle diyebiliriz, renk skalası verirsiniz. Bakın maviyi kullanacaksanız, yanında işte şu şu şu renkleri kullanabilirsiniz. Hani bunlar hakikaten çok önemli şeyler. Ondan sonra işte üste gelecek title bellidir, konu başlık aralarına neler yapılması gerekiyor, ondan sonra şimdi bütün prodüksiyonu yapıyorsunuz. Sesin levelinin ne olması lazım? Yani, bunların bütün teknik şeylerin hepsi... Ha biz bunun örneğini verdik. Bunun aynısını yapın gibi diyecek bir şey değil bu. Bunun yerine herkese bir şablon verirsiniz, şunun ki şu renk olsun, bunun ki iki renk olsun, sizin skalanız bu olsun dersiniz, bu çok rahatlatıcı olur (P2).

...içerik başlıkları daha evvel belirlenip, katagorize edilmiş ve bunlarla ilgili kiminle çalışılacağı da ortaya konmuş olsaydı çok daha güzel olabilirdi (QA1).

Bu adımda portal ve özellikleri üzerinde önceden bir mutabakat sağlanması çok daha iyi olacaktır (SWT3).

... o yüzden işte study visitleri en başa almamız gerektiğini söylemiştim ben. İlk başta gidilip görülüp ordaki şeylere göre karar verip bir yol çizmek en mantıklısı (APS3).

Organizing the specialized meeting dedicated to the presentation of the content outlines and sample content storyboards. Next Thursday (14th of January) E-Learning Company will share the storyboard scenarios to discuss and decide the final versions. However, CT thinks that it is too early to decide before the Best Practice Analysis and Innovative Methods are done. E-Learning Company mentioned the time was restricted in terms of following the program 08.01.2016 3. Weekly Meeting Minutes).

.. Amerika'da WhatWorks diye bir site var. Bunun gibi hani bu böyle işler, burada şuna dikkat etmeniz lazım gibisinden... Keşke bu projeden- tezden de şunlar çıksa 7 tane şey ana başlıkta, şunlara, şunlara, şunlara dikkat edilirse devletin yapacağı veya işte üniversitenin yapacağı ihalelerde, e-içeriklerde başarılı olunabilir diye düşünüyoruz (SME2).

kullanılacak program, donanım, sistemler detaylı bir şekilde incelenmelidir (SB3).

... Son olarak APS, taraflar arasında beklentilerin daha net anlaşılmasına yardımcı olması açısından kurumsal bir e-öğrenme platformundaki en çok gönüllü girilen örnek bir dersin incelenmesi önerisinde bulundu (17.08.2017 Course Production Planning Workshop).

...mutlaka bazı derslerle ilgili projenin başından itibaren workshoplar 3 günlük eğitimler daha sertifikaya yönelik eğitimler planladım projenin devamı olsa bunlar mutlaka olması gerektiğini düşünüyorum (PM2).

Son kullanıcıdan yorumlar alınır. Pilot testler yapılır. Sonra ikincisi daha güzelleştirilerek, yine bir toplantı yapılır, ara toplantı yapılır (DT2).

Kontrol eden ekibin içerisinde de dil uzmanı olmalı, yapan kişilerde de ve bu konu çok hassas bir öğretim materyali hazırlarken (CT1).

Çünkü biz aslında bazen çok sayfalar dolusu anlatılabilecek bir konunun da dersini hazırlayabiliyoruz. Veya çok kısaca eee... içeriği daha az olacak bir konunun da dersini hazırlayabiliyoruz. Ya öncesinde ham içeriği hazırlayacak kişiden konu başlıkları istenmeli, onun üzerinde gidilmeli ya da ekip buna hakimse önceden yaptığı çalışmalarla çünkü sonuçta bu dersler belirlenirken de bir çalışma yapılıyor. ihtiyaçların hangi yönde olduğu vs. eğer proje yönetimi de buna hakimse o da konu başlıklarını verebilir. Biz hani ana konumuz evet falanca ders ama bunun alt başlıkları da şöyle olmalıdır diyebiliyorsa der yoksa alan uzmanı daha hazırlamadan ham içeriği o başlıkları belirleyip bi mutabık kalmak lazım diye düşünüyorum (SMET3).

..gittiğimiz eğitimler verdiğimiz, seminer verdiğimiz her yerde böyle daha çok işlerine yaracak kısa öz hap bilgiler istiyorlar bunları da bu programın içine bir kere mutlaka koyardım(PMT2).

Bakın bu cümle çok uzun. Hiçkimse bunu dinlerken bu kadar uzun cümleye odaklanamaz. Dinlemek ile yazmak da, bir yazıyı okumak da aynı şey değil. Bunu da şey yapmak lazım, altını çizmek lazım. Siz şeyi dinlerken veya birisi konuşmayla size şeyi anlatırken daha kısa cümlelerle ifade eder veya vurgular daha iyi gerçekleştiğinde anlaşılır hale gelir. Ama yazdığınız, yazılan şeyi okurken, dönüp bir daha okuma şansınız da vardır. Veya o anda o sessizlik içinde okurken daha uzun cümlelere iyi odaklanabilirsiniz (DT3).

..gerçek bir ihtiyaca yönelik bir product olarak eşya yapacak daha standart bir senaryo olsa... Hatta belki öyle iyi oluşturulmuş bir senaryo yapısı şeyi bile aşmamızı sağlayabilir. Ham içerik oluşturan kişi var ya... Yani onu ona verip doğrudan senaryonun ham içerik esnasında oluşturulması... Yani ham içeriği al ondan sonra senaryoya geç yerine aslında başta dediğimiz bu metodolojiyi taa ham içerik aşamasından başlatılabilir. Ham içeriği yaparken aslında ham içeriği senaryo üzerinden oluştursun (CT2).

En baştan redaktör aldirmek. Direkt başlar başlamaz redaktörünüz var mı yok mu? Yoksa bu iş olmaz deyip direkt redaktör aldirmek (B4).

Yani bu iş nasıl hızlanabileceğiyle ilgili artık kafamda bir şey var. Yani, çok zor bir şey değil aslında. Sadece çok planlı, programlı yapmak gerekiyor. Bana o, katkısı çok oldu. Yani, şimdi dönüp başlasam bu projeye en azından, dediğim gibi hemen her dersle ilgili mikro sablonlar hazırlatırım. Yani, senaryolarla ilgili öncelikle bir guidance hazırlarım. Ne, nasıl yapılması gerekiyor (SME2).

Örnekleri de seçerken hakikaten böyle bir araya gelerek çok şey yaptık; fikir eee... teatrisinde bulunduk... Aslında altını çiziyorum ama... Storyboard bir kişinin elinden çıktığında kesinlikle farklı kişilerin o storyboardu okuması lazım. Zaten sizin hedefiniz çok farklı kişilerin o dersi izlemesi değil mi? (SMP3)

Proje sadece eğitimcilere bırakılmamalı. Senaristler, filmciler, tasarımcılar, bilgisayar programcıları da dahil olmalı. Çevrim içi eğitimler, işbaşı eğitim verenlerle birlikte hazırlanmalı (KOBİ Employer, 15.03.2016)

hani biz konu anlatımı istemiyoruz, hani daha çok pratiğe yönelik şeyler istiyoruzun üstünde durduk ama gelen şeylerde ağır bir konu anlatımı geldi hani. Tamam belli şeylerde konu anlatımının olması gerekiyor hani ama bunun light, az olması gerekiyor (CT1).

günlük dediğim gibi hani ihtiyaçları, problemlerini çözebilecek türde eğitimlerin olması(CT2).

hani biz konu anlatımı istemiyoruz, hani daha çok pratiğe yönelik şeyler istiyoruzun üstünde durduk ama gelen şeylerde ağır bir konu anlatımı geldi hani. Tamam belli şeylerde konu anlatımının olması gerekiyor hani ama bunun light, az olması gerekiyor(CT1).

Daha dinamik, hareketli ve hikayelerin içlerine yedirilmiş bir ders daha etkili olurdu (SWT4).

Bu tarzda bir MOOC yapacaksa daha çok etkileşim olmalı (CT1).

Gazete haberi olabilir eee... kendi dünyasından da örnekler verebilir, yaşadığı şeylerden. Veya bi oyun kurgusu bile size söyleyebilir. Böyle bir oyunla şu konu güzel anlatılabilir. Aslında o alanda verebileceği şeyleri derli toplu bi halde vermesi çok önemli gerçekten(P3).

Microcontroller dersinde mümkünse kendi birinin yaptığı videoların olması gerekir mesela. Hani stres yönetiminde belki olmaz ama hani orada sadece imaj verirsiniz ama teknik derslerde mutlaka video ile desteklemeniz gerekir ki mümkünse video uygulamanın sonucunda bir şey çıkan bir video olması gerekir ki kullanıcı birebir aynısını evde oturduğunda yapabilmeli (B3).

Kesinlikle bence bir şey ayrılmalı takımlar mesela soft skill, teknik dersler ayrı takım olmalı, ayrı değerlendirilmeli, ayrı belki süreçleri olmalı. Yapan firmalar da, yapan uzmanlar da ona uygun olmalı. Hani bu ne kadar kategori olur bilmiyorum. Ama en temel öyle iki kategoriye ayırabiliyorum (QA2).

MOOC geliştirirken, to do point bilgilerin olması gerekiyor. Mesela şeyler çok eleştiriliyor. Hani hani edX derslerinde adam Harvard'a verdiği dersi gidiyor dümdüz ders verir gibi anlatıyor...bu çok sıkıcı. Yeni gelişen nesil de artık hiçbir şeye focuslanmıyor, şey yapmıyor... bizim daha eğlenceli, daha iyi bilgiler veren, daha çok etkileşim sağlayan bir şeyler yapmamız gerekiyor... adam oturup izlemek yerine değil de yaparak daha çok öğrenmeli (CT1).

Dallanmalı yapıya çok sık değiniyorduk. Kişisel tercihlere dayalı sistemler. Süreç içerisinde evet hani kişinin şeysinin progressini takip edip ona göre geri bildirim verecek, ona göre kişiyi öğrenme sürecinde takip edecek daha böyle adapte bir takım sistemler onlar biraz daha teknik teknolojik şeye doğru gidiyor öğrenme ortamları hani olabilir (CT2).

Dersi almadan önce bakıyorum altına. Kaç yıldız vermiş mesela. Yıldız veriyor adam derse. İşte öyle bir şey açılması lazım. ...Alan adamların yani ben merak ediyorum mesela. Bir tane ders alacağım. Tamam bedava da, oturup onu seyredeceğim sonuçta. Vakit ayıracağım...Ha orada bir tane bakarım yorumlara eğer çoğunluk beğeniyorsa derim ki ha demekki alınabilir yani. Ama çoğunluk ya rezil gibi anlatmış adam çok kötü ders, hiç bir şey anlamadım 50 kişi diyorsa geçerim o dersi. Başka bir yeren bakarım (SME1).

MOOC'ları MOOC yapan şey sosyalleşme olması falan. Tam Türk kültüründe ne kadar sosyalleşirler bilmiyorum da ama yine bir hani o ortam insanlara sağlanmalı (CT1).

Mesela googlenin derslerini alıyorsun 23 tane rozeti tamamladığın taktirde sana sertifika vericez. Çok küçük bir şey ama yetişkin eğitiminde de bunlar çok işe yarıyor böyle basit şeyleri çok başta kurgulayıp koymamız gerekiyordu. Elemelerde mesela inovatif yöntem ne olabilir şuanda önrövaşa yani benim kendi tubitak çalışmamda da gamificationı bir kere kesinlikle koyacaksın, veri madenciliğini koyacaksın, akıllı raporlamaları koyacaksın...mesela bizle, siz raporlamaları istiyorsunuz tamam biz o raporlamaları, sorguları sql ile yazıyoruz ama bu sistem başta kurgulanırken inovatif diyorsak bunun bir iş zekası modülü olmalıydı (PMT2).

“xxx dersini tamamladım, şimdi hangi dersi almalıyım?” gibi öneriler beklendiğinde, portalde aynı kategori altında bulunan diğer dersler önerilebilir (Ör: Excel’de Ön Muhasebe->Excel’de Makrolar)

öğrenen kişiyi o sürecin içine daha involve ettirecek şeyler onun hayatının içine hani işte mobil app türü mesela uygulamalar bunlardan bir tanesi hani sürekli her yerde kullanabileceği, sorunsuz olarak kullanabileceği bir şeyler olması (CT2).

sistem kendi kendini baltalayacak bir süre sonra. Başarılı oldukça daha çok insan oldukça bir süre sonra boğulup kalacaklar buradaki insanlar ve yapamayacaklar yani o işi. Yada böyle buraya hakikaten bir bölüm kurulacak Bilgeiş eğitim ölümü diye. Orada adamlar sırf bununla uğraşacak (SME1).

Kocaman bir ekip olacak ki o çok mantıklı birşey değil yani sürdürülebilirlik açısından. O yüzden bu ödev değerlendirme işini öğrencilere yıkmak lazım bir şekilde. Bir formül bulup. Mesela öyle siteler var (SB1).

Ekran kayıtlarında özellikle ses ile ilgili sorun var:

- Ses kalitesi ve seviyesi çok düşük.
- Seslendirenin diksiyon problemleri var.
- Sesler “mono” kaydedilmiş (End User Test Results).

Radyo ODTÜ den speakerlar. Bir derlerdi ki bakın arkadaşlar. Onlarada projeden öderlerdi hatta yani. Para vermesine gerek yok içerik sağlayıcının. Bunu ben kendim tuttum. Ne kadar istersin dedim, şu kadar dedi. Peki dedim. Gönderdim metni. Okudu. O bir havuz olurdu. Mesela işte şu var bu var bu var. Erkek istiyorsan şu, kadın istiyorsan bu. O kadar önemli bir kaynak ki Radyo ODTÜ. Herkesin sesi güzel. Vurgusu güzel. Diksiyonu iyi. Onlara verirsiniz (DT1).

Yani bunların olduğu böyle bir en azından adama eline birşey bir guide vermek lazım yani. Böyle böyle bakın işte. Seslendirirken şöyle yapın veya şurdaki insanlar seslendirmek için uygun olabilir (SME1).

Tüm ekiplerin birbiri ile entegre şekilde çalışması gerektiğini fark ettim. Standartların uygulanabilirliğin aslında her bir ekip içinde kontrol edilmesi gereken bir konu olduğunu düşünüyorum (DT3).

Eğer gerekli özen gösterilirse bu standartlar süreç boyunca uygulanabilir. Bu noktada kontrol ekibi ile de sistematik bir şekilde çalışıyor olmanız da gerekir, öte yandan aksi bir durumda süreci hem zorlaştırır hem de uzatır (SWTDT3).

CT hakemin sorusuna yanıt olarak; “Başından birşeyleri düzeltip hareket edilmeli, ne istediğimiz konusunda anlaşmalıyız aksi takdirde bir iş taraflar arasında çok fazla dönüyor ve bu durum süreci çok uzatıyor” dedi ve son zamanlarda gelen içeriklerin beklentilere daha uygun olduğunu ekledi(Course Production Planning Workshop Minutes).

Gizli moddaki, moodledaki dersler için bir tane checklist yaptılar. O checkliste bakmaya başladılar. Yani şöyle; olabilir ama biyandan da bence çok sınırlamamak lazım. Bu sefer başka şey görmüyorlar çünkü. Hani tamam checkliste bakıyor. Aynı noktaya dönüyor.. Evet. pit pit atıyor çekleri... doğrudur onları kontrol ediyor ama bu arada

başka şeyleri gözden geçiriyor. Dolayısıyla hani belki normal bir test yapıp, şaysız, checklistsiz ki aslında test yaparken de bir önceki dökümana göre ilerlemesi gerekiyor ya normalde işte senaryo bakıcak falan. İşte o aşamada aslında zaten o şeyi yapıyor olması lazım... hani o bir Doküman; onun üzerinden yapıyor onun testini. O testi yaptıktan sonra checkliste geçmek daha anlamlı olabilir. her ders kendi içinde rawdan itibaren, hani bir önceki ... Aynen herkes için bir önceki... o cycle'ı takip etse daha mantıklı olur. ama bir checklist işe yarar mutlaka hani. Çünkü gözümüzden kaçan mutlaka şeyler oluyor yani. Bir derste baktığında öbür derste bakmıyorsun. Dikkatini çekmiyor falan. Oluyor yani bunların hepsi. Ama... checklistin dışını da bakılabiliyor olması lazım (CT5).

testlerde referansız Storyboardun dışında çok fazla bişey istememek gerekir ama bu illa istenmicek anlamında değil. Fakat, eğer bunun yüzdesi dediğim gibi böyle %10ları aşıyorsa, tıkanan bi yerler olmuş ki bu kadar değişiklik ben istiyorum. Veya doğru gitmeyen bişeyler olmuş ki ben bu kadar değişiklik istiyorum. Acaba, ham içerikte mi atlanan şeyler oldu, belirsizlikler vardı. Ya da storyboardu onaylarken iyi gözle bakmadık da üretimde biz niye böyle değişiklikler istiyoruz diye kendi kendimize de sormamız gerekiyor diye düşünüyorum (P3).

Olması gereken olmalı, ondan sonra, sonraki süreç başlamalı. Sonraki süreçteki ilgililere bitmiş halde her şey teslim edilmeli. O zaman ne oluyor; gözden geçirmeniz çok kolay oluyor. Neden gözden geçirmeniz çok kolay oluyor; aslında siz o süreci yaşarken ne çıkacağı geri planda oluyor. Hayalinizde var aslında o. Napiyorsunuz; storyboardu açıyorsunuz, bizim test ekibimiz öyle çalışıyor (DT3).

Süreç İyileştirme Önerileri: Ham içerik-senaryo ve üretim alınan derslerin moodle da içerik değişikliği olmaması (29.12.2016 PM Presentation).

:” ELT senaryo sürecinde onay alınmış bir başlığın veya akışın değişmemesi gerektiğini , onay alınmış bir içerikte değişiklik talebinde iterasyona yol açtığını belirtti.”(17.08.2017 Course Production Planning Workshop)

... aslında siz zaten ham içerikten gelen bir tecrübeniz var. Eğer aynı ekip gözden geçirecekse ya da aynı kişi. Biz buna biraz önem veriyoruz (P3).

Action Item: İkinci revizyon sürecini ortadan kaldırmak. ilk revizyon sürecinden sonra yeni düzenlemeler gerektirecek bariz hata vs. sorunlarda kağıt üzerinde değil, toplantı yaparak veya telefonla görüşerek çözülmesi. İlk splaferde yapılabilen revizyon maddelerinin yapılması, yapılamayanların bildirilmesi ve yapılamayanlar konusunda uzlaşma sağlanması kararı alındı. Derse revizyon veren OCU üyesinin bu dersin revizyonları uygulandıktan sonra kontrolünde aynı OCU üyesi tarafından kararlaştırıldı (Interim Report 1).

...ya mesleki körlük diye bir şey var. Sizin için çok bariz oluyor ama adam dinliyor dinliyor ben anlamadım hiç bunu ne demek istiyor falan diyor. Hani şurda şöyle demişim ya diyorsunuz. Hiç haberi yok ondan yani. Ona önem vermemiş atlamış gitmiş. Halbuki sizin için o kadar bariz ki o. Bir cümleyle anlatmışsınız. Ha bu sefer onu hadi bakalım şekillerle. Buradan böyle gelir, o öyle olur. Bak bu yüzden de bu böyledir diye onu baştan tasarlamak zorunda kalıyorsunuz yani. O çok oluyor. Bir konuda çok çalışıyorsanız o bir süre sonra size o kadar bariz geliyor ki yani. Tabi canım tabiki böyle oluyorsunuz yani. Hani onu söylemeye bile gerek yok oluyor ama öyle olmuyor yani (SME1).

SWT1 derslere gelen revizyonlar ile alakalı problemlerden bahsetti; örneğin, “Google Drive” dersi için ilk aşamada gelen 49 revizyonun 42 tanesi uygulandıktan sonra ikinci revizyon sürecinde buna ek olarak 53 revizyonun daha eklendiğini, ikinci bir örnek olarak “İnternete Güvenlik” dersinin ilk revizyon sürecindeki gelen 113 maddenin, 109’u uygulandıktan sonra ikinci revizyon sürecinde 50 revizyon daha geldiğini belirtti. ELT presenter. bu duruma çözüm önerisi olarak; ikinci revizyon sürecinin kalkması ve kontrol mekanizmasının tek seferde yapılması gerektiğini belirtti. CT temsilcileri, ikinci revizyonlarda eklenen maddelerin gözden kaçan şeyler olabileceğini söyledi (Course Production Planning Workshop).

..çeşitlilik iyidir, destek alarak bu süreci zenginleştirebiliriz. İki göz daha iyi oluyor yani. Çünkü hani bir de yaparken tartışabiliyorsunuz (CT1).

Simdi isin kaliteli olmasi istenen ve olmasi gereken birsey ancak bunun daha sistemli olmasi ve bastan eksikler belirlenerek ve adım adım takip edilerek ilerlenmesi daha iyi olabildi (SWT2).

Bence yönetici olacak kisilerin yonetecegi projeye daha cok hakim olmasi ve o konu ile ilgili bir egitim almisi olmasi hem onun isini hem de surec icinde calistirdigi ya da calistigi kislerin isini kolaylastiracaktir. Az once belittigim durumla ayni, bu isin daha kolay ve zamaninda ilerlenmesi isteniyor ise sistemli bir sekilde egitimler verilecek ve surec takip edilecek, bu surece tam anlamıyla hakim olan biri de takim lideri olarak atanacak. ki bu sekilde sorularimizi iletebilecegimiz bir kisi olsun (SWT2).

Mesela içerik için gruplar olsaydı. Atıyorum belli domainlerde beşlik, onluk ders setlerimiz olsaydı baştan bilseydik bu isimleri, bu isimleri sonrada ortaya çıkarmasaydık, o gruplarla birlikte o beşlik, onluk ders setlerinin içeriklerini set set çıkarabilseydik, onların üzerine gidebilseydik, o konu uzmanları arama sürecimizi minimize edebilirdik. Böylece o zaman işte şu dersin tamamlayıcısı olsunları daha net ortaya koyabilirdik. Böyle biz skalamızı çok geniş tuttuk, sayımızı çok büyük tuttuk. O bizim bu süreçteki bazı şeylerimizi zamanlarımızı çok uzattı. Çünkü bir konu uzmanına ulaşmak kolay bir iş değil. O konu uzmanı yani ulaştığınız konu uzmanına siz derdinizi anlatıp, içeriği alıncaya kadar her bir ders için minimum 2 hafta geçiyor. Ama dediğim gibi böyle focus gruplarımız olsaydı belki çok daha kolay hani ilk derste derdimizi anlatır, geri kalan 4 dersi daha net alırdık (QA1).

Belki ekipler daha küçük üyelere bölünebilir. Ekipler birbirleri ile daha sık bir araya gelebilir. Süreç yönetimine daha çok dikkat edilebilir (SWT3).

Her projede akvaryumdaki balıklar gibi düşünmek gerekiyor. Biz projenin içinde olan kişiler akvaryum içindeki balıklar gibiyiz. Suyun içinde bir pislik varsa onu da farkedemezsin. Onun için dışarıdan birisinin bakması bu projenin başında, şartnamesi yazılırken, başlarken, derlenirken dışardan birinin gelip ne oluyor ne bitiyor burada, ne yapıyorsunuz diyip kritik bir şekilde desteklemesi her türlü büyük projede olması gereken şeylerden bir tanesi. Hani o başka projelerde de danışmanlar falan vardır mesela. İyi bir danışmanın varsa gelir sana 2 saat bakar bir şeyler söyler. Kafanda senin yeşil ışık yanar. Onun için kaliteli bir danışmanı, konuyu iyi bilen birisini işin içine almak lazım (CT2).

Belki en başında proje başlamadan önce belli standartlar daha açık ve net yazılıydı daha iyi olabildi (CT7).

CT temsilcileri; üretim sürecini hızlandırmak amaçlı kalan 90 ders için bir standardizasyon oluşturulması gerektiğini belirtti ve buna ek olarak bir task management sistem oluşturulmasını talep etti. Production Planı güncellenecek; öncelikle ham içeriklerin tarihleri güncellenecek daha sonrasında E-Learning Company üretim tarfindaki tarihleri güncelleyecek ve tüm tarafların mutabık kalacağı şekilde Production Plan'ı revize edilecek. Güncellenen Proje Planı herkesin erişebilmesi açısından Google Drive'a, Excel dosyası olarak eklenecek ve yeni düzenlemeler olduğunda word dosyası olarak paylaşılacak (17.08.2017 Course Production Planning Workshop).

Süreç İyileştirme Önerileri: Proje paydaşlarının hedeflenen proje çıktıları garanti altına alacak revize proje planını oluşturması için bir araya gelmesi. Süreç içinde karşılaştığımız teknik konularla ilgili maddeleri izleme ve takip (29.12.2016 PM Presentation)

...öğretim tasarımıyla ilgili... dediğim gibi tool kullanabilseydik. Yani öğretim tasarımında kullandığımız hani o PowerPoint dökümanları gitti geldi vesairenin belki daha iyi kullanılabileceği bir collaborative bir toolumuz olabildi belki (QAT1).

Yani birbirlerini kopartmak değil. Yani ben içeriği yaptım. Tamam hadi sen bundan sonra devam et değil. Aslında zaten süreçler birbirlerine concurrent gidecekse orada iletişimin de olması, yakın iletişimin de olmasının faydası olacaktır. O zaman buna özellikle bu yazılım mühendisliğinde, agile metodolojide Extreme programming dedikleri bir şey var yazılım mühendisliğinde. Agile'ın altında extreme programming diye... Bu, yazılım projelerinde ama bu tarafa da uygulanabilir bence. Mesela kodlayıcı kodlarken yanında mesela bir kodlayıcı daha oluyor. Beraber kodluyorlar. Bir de yanlarında da son kullanıcı oluyor. Direk şey yapıyorlar. Bunu gerçek hayatta full yapmak mümkün olmayabilir ama bu tarafta da şeyler ara ara bir araya gelip mümkün olduğunca birbirleriyle iletişime geçip ilerleseler daha sorunsuz daha iyi bir ürün ortaya çıkabilir. Çünkü öbür türlü burada ham içerikçi hazırlıyor, ama benim işim bitti diye düşünabiliyor. Halbuki hayat öyle ilerlemiyor. Senin burada söylemek istediğini buradaki tam anlamamış olabilir (CT2).

İlk başta bir ürünün %100 tam mükemmel olduktan sonra müşteriye çıkmasını beklersek eğer çok hızlı, çok zaman kaybederiz. Bu ilk sürümü... whatsapp çıkıyor adam ayda bir güncelleme gönderiyor, ayda bir iyileştirme gönderiyor bu sistemi kurgularken bunu düşünüp, nasıl google ilk çıktı çok mu mükemmeldi? Asla değildi. Bir ilk çıkartıp mesela bu ne biliyor musun yüzde 20 si belki yapmak istediğimizin yüzde 20 si ...Aslında ilk 10 derste bizim amacımız buydu.

ilk 10 dersi bi verelim bu böyle lessonslarda olsun ordan aldıklarımızla 90 ders tasarlayalım ama o hani şey ama olmadı (PMT2).

Hakem katılımcılara “content specifications” da bir takım iyileştirmeler yapılırsa, sorunların çözümünü kolaylaştırıp tarafları aynı noktaya getirir mi sorusunu yöneltti. QAT1. spesifikasyonların daha net belirlenmesi gerektiğini, senaryo ve production sürecini kapsayan bir plan yapılmasını önerdi (17.08.2017 Course Production Planning Workshop).

Bütün dersler için belirli kriterler belirlenip, gerçekten bu dersin içeriği örneğin bütün tasarımların, şunlar şunlar kullanılacak bu olacak, belki aslında şeye dönüp objektifler vs. de yazılmalı, kazanımlar vs. Çünkü mesela bu dersleri hazırlarken... Biz baştan yazsaydık yani biz istediğimiz gibi baştan verseydik. Ya evet. Belki de o dersleri en başından belirleyip; içeriğinde ne olacak? İşte unity mi olacak, şu mu olacak bu mu olacak... Yani daha çok teknik kriterleri belirleyip gitseydik...(CT7).

bunun için de özel prosedürler yazıp, bir yere koyup sürekli iş geldiği sürece, örneğin “moodle aday” diye bir süreç yarattık, “moodle aday” üstüne bir iş geldiği zaman, “moodle aday” sürecini açacak bakacak, hangi iş akışta kimden gelecek, kime yollayacak. Bu süreçlerde “moodle aday” da neler bakılacak? Tek tek bunların hepsi yazılı prosedür haline getirilmesi gerekiyor, projenin en başında (QAT3).

Kalite ve değişiklik yönetimine uyulması ve Örnek ekleme ve değiştirmede fayda/süre/kalite dengesine bakılması (Ham içerik-senaryo) (29.12.2016 PM Presentation).

Moderatör katılımcılara “content specifications” da bir takım iyileştirmeler yapılırsa, sorunların çözümünü kolaylaştırıp tarafları aynı noktaya getirir mi sorusunu yöneltti. QAT1. spesifikasyonların daha net belirlenmesi gerektiğini, senaryo ve production sürecini kapsayan bir plan yapılmasını önerdi. CT bunlarla alakalı hali hazırda bir planın var olduğunu ve süreçlerin CT tarafından buradan takip edildiğini belirtti. E-Learning Company presenter bu spesifikasyonlara bakıldığında herkesin farklı yorumlayabileceğini ve E-Learning Company olarak zaman bütçe ve kaynak açılarından ürün üretme odaklı olduklarını belirtti (Course Production Planning Workshop).

Çünkü biz iki tarafta hani standardın ne olduğunu bilmiyoruz. Yani biz üç kişi bakarken karşı taraftan normalde buna bir kişi bakar, devamlı ona bakar denseydi (CT4).

Her şeyi (kriteri) bilen birinin olması daha mantıklı. 4 kişi bakıyorsa altında en sonda bir kişinin gözünden çıkarsa “ya sen diğerinde verdiğin yorumu niye şey yapmadın buraya” diye belki yazabilirdi (APS3).

Onlar (QA) hem içerik uzmanıyla senaryocu arasındaki bu hem senaryo ile üretim arasındaki bağı kurmaya çalıştılar ama yine de böyle bir organik bağ olmalı hem de templateler olmalı (CT2).

Bu standartların uygulanabilirliği ekiplerdeki şefler vasıtasıyla kontrol edilerek sağlanabilir. Çünkü toplantılarda alınan kararlar aslında şefler vasıtasıyla aktarılır ve süreçte bu ekiplerle şekillenir. Bu noktada belirlenen standartların öğretim tasarımı sürecinde uygulanması ders içeriği, ders kapsamında değişiklik gösterebilir (DT3).

Ya belgeler kenarda kalıyor yani hayatın gerçeği gereği kenarda kalıyor, çünkü: yani yola çıktığımızda artık hani orda ilerliyorsunuz belli şeyler belirlenmiş ama sonuçta hani kalite kontrol da olsa bile bazı şeyler kenarda kalıyor ama yapısı gereği yani her şeyin de olmasını istemek oraya bi checklist koyup da, işte bir derste 100 tane checklist maddesi koyup hepsine tik atıp da ilerlemek, çok da gerçekçi değil (APS1).

CT, Anlaşılmayan ve spesifik olarak neye işaret ettiği belli olmayan revizyonlar olduğunda bu konuda tekrar bir revizyon daha vermemek adına, iletişim halinde olarak sorulmalı (17.08.2017 Course Production Planning Workshop).

Alan uzmanının tecrübesi çok çok önemli bence. Gerçekten o konuda tecrübe edinmiş, çalışmış, bi takım hikâyeleri olan kişileri seçmek lazım... Her işin uzmanı hakkaten hakkını vererek yapan kişi anlamına geliyor. Hakkını vererek yaptığı zaman da diğer tarafa zaten iş kalmayacaktır (SME_SWT_DT3).

TOR’u daha tasarlarlarken, yeni bir öğrenme projesi TOR’u olursa, e-öğrenmeye biraz daha kaynak aktarılması gerektiğine dair TOR’un içerisine, farklı yerlerine bunu anlatan detayların konulması gerekiyor (APS1).

konu uzmanlarıyla birazcık daha iterative bir süreç işletmek gerekiyor (QAT1).

İçerik tasarımcısının her aşamada bir şeyinin olması lazım. Bir görüşünün olması lazım yani (SME1).

Bir tane örnek ders hazırlayıp dersi o içerik uzmanlarıyla yine göstermek onlara ve o dersi birlikte almak. Ee onlardan şey yorumu da alınabilir hatta belki. Nerede eksik görüyorsunuz? Sizin gördüğünüz ne var falan gibi şeyler (CT4).

Eee... ham içeriği hazırlayan kişi ham içeriği hazırlama sürecinde de sürekli proje yönetim ekibiyle iletişim halinde olmalı. O önemli. Yine bitakım kurallarınızı ham içeriği kişiye vermeniz lazım. Örneğin, sadece safi metin olmamalı. Artık biliyorsunuz öğrenme yöntemleri işte örnekler üzerinde dayandırılıyor bitakım mesela diyosunuz ki biz bunu görsel, işitsel materyallerle desteklicez (SME_P3).

Hani genel bakacak olursan (bu işte) iletişim önemli (CT2).

Grubun birbiriyle çok can ciğer dost olması gerekmiyor ama en azından iyi bir iletişim içinde... en azından daha civilized, daha medeni ilişkiler olması gerekiyor. Hani gerektiği yerde de karşılıklı "yok bu böyle olmaz, şöyle olmaz" diye karşı çıkabilen türde olması gerekiyor. Ama biz böyle bir şeyi proje sürecinde bir case'de yaşadık. Karşı taraftan, bizimle doğru düzgün iletişime geçemeyen, işi sadece kritik etmek olan birisiyle hoş olmayan muhabbetler ettik. Ama diğer kişilerle, işte falanca kişinin verdiği yorumu beğenmedik, etmedik ama ilişkilerimiz yine de medeni ilişkilerdi (CT2).

QA1 review sürecini tablo olarak açıklayarak; verilen 60 revizyonun 45 tanesi düzgünce uygulandığında, iletişimi ve taraflar arasındaki uzlaşmayı kolaylaştırmak adına teşekkür edilmesi gerektiğini belirtti (17.08.2017 Course Production Planning Workshop).

...içeriği kontrol ederken bence onun bir toplantı olması lazım. Yüz yüze. Yani siz onları okuyup adamlara çünkü şu süreç çok sıkıntılı bir süreç. Siz bir revizyon yapıyorsunuz adam belki ben hocayım ve "bu hayır kardeşim böyle olacak bu diyorum" mesela. Şimdi size onu yazıyorum siz bir daha bilmem ne. Git gel, git gel. Bir tane toplantı yapılır eğitmenle... Orada söylersiniz. O da size ikna eder. Edebiliyorsa... Bunun böyle olması lazım der. Yani mesela şu revizyon gelebilirdi bana. Ya öğrenci bunu böyle bilgisayarda animasyon olarak görmese daha iyi. Canlı görsün. Kur sen onu çek. Olabilirdi yani. Bende size ikna etmeye çalışırdım. Ya o zaman işte her yerden düzgün çekemiyoruz. Öğrenci düzgün göremiyor (SMET1).

Taraflar zaman planlamasında darboğaz oluşturan; ikinci revizyon sürecindeki problemlerini ve çözüm önerilerini anlattıktan sonra ikinci revizyon sürecinin kaldırılması, ilk revizyon sürecinden sonra yeni düzenlemeler gerektirecek bariz hata vs. sorunlarda kağıt üzerinde değil, toplantı yaparak veya telefonla görüşerek çözülmesi hususunda mütabık kaldı (17.08.2017 Course Production Planning Workshop).

... bir şeyi bir kere söyleyip, nasıl olsa söyledim bitti demek değil; bir şeyi farklı kanallardan defalarca söylemek gerekiyor. Çünkü insanların değişik ajandaları olabilir, o anda focuslanmamış olabilir vs. Onun için özellikle bu organizational communicationdaki temel prensiplerden birtanesi redundant communicationdır. Yani bir şeyi bir yerde yaptırmak istiyorsan, bu mesela özellikle Rogers'ın Diffusion of Innovation'da gündeme gelir... bir yenilik getiriyorsun bir topluma/bir yere.. O yeniliğin ya da farklı bir takım şeylerin karşı taraftan kabul edilebilmesi için bir kere söyleyip, "Ya biz bunu söylemiştik, adamlar da anlamadılar" demek yanlış deniyor. Çünkü insanlar bir fikrin kendi fikirleriymiş gibi sahiplenmeleri ancak farklı farklı kanallarla o insanlara giderek ulaşılması sayesinde oluyor. Dolayısıyla burada da yani her türlü kanalı kullanıp bir şeyi bir kere değil birden çok kez söylemek gerekiyor (CT1)

CURRICULUM VITAE

PERSONAL INFORMATION

Surname, Name: Eşfer, Sezin

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Date and Place of Birth: 09 March 1985, İzmir

Marital Status: Married

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EDUCATION

Degree	Institution	Year of Graduation
MS	Marmara University Computer Education and Instructional Technology	2011
BS	Uludag University Computer Education and Instructional Technology	2006
High School	Bergama Cumhuriyet High School, İzmir	2002

WORK EXPERIENCE

Date	Place	Enrollment
June 2019- October 2019	METU- GİSAM	Expert Researcher
January 2013- May 2019	METU- Computer Education and Instructional Technology Department	Research Assistant
2013- continuous	bilgeis.net	Operation Coordination Unit Member, Researcher, Instructional Designer
February 2011- July 2012	Department of Secondary Science and Mathematics Education, Marmara University	Lecturer
September 2006- January 2013	-Halil Türkkân İlköğretim Okulu, Kadıköy/Ministry of Education -Kazım Karabekir İlköğretim Okulu, Ümraniye /Ministry of Education -Ziya Gökalp İlköğretim Okulu, Bağcılar/Ministry of Education	IT Teacher and IT Coordinator
November 2006- July 2007	Turkish Prime Ministry of Social Services and Child Protection Agency	Volunteer Instructor and Technology Consultant
September 2005- July 2006	Educational Volunteers Foundation of Turkey TEGV	Volunteer Instructor and Technology Consultant

FOREIGN LANGUAGES

Advanced English, Beginner German

PUBLICATIONS

International Book Chapters

- **Esfer, S., & Cagiltay, K.** (2018). Creating a MOOC portal for workplace learning. In Ifenthaler, G. (Ed.), *Digital Workplace Learning* (pp. 167-185). Cham: Springer, https://doi.org/10.1007/978-3-319-46215-8_10
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- Cagiltay, K., **Esfer, S.**, Çelik, B., (2018). Insights into a nationwide pdMOOC bilgeis.net: A Case from Turkey. E Learn 2018
- **Esfer, S.**, Çelik, B., Cagiltay, K. (2018). Türkiye'nin En Büyük KAÇD Portalı: Bilgeİş'in Güncel Durumu. 12th International Computer InstructionalTechnologies Symposium
- **Esfer, S.**, Esen Ö., Dönmez, M., Cevizci, E., Cagiltay, K. (2018). Examining in-class technology use with Eye Tracking: E-Teach Project. 12th International Computer Instructional Technologies Symposium
- Çelik, B., **Esfer, S.**, Cagiltay, K. (2018). What Motivates Learners in a MOOC: Bilgeİş Case? 12th International Computer InstructionalTechnologies Symposium
- **Esfer, S.**, Cagiltay, K., Gürel, N., Çevik, R., Alkan S., Teker, M. (2017). 100 MOOC project for SMEs: What do they need? EDEN 2017, 26-34.
- Kaya, K.Y., Güleç, M., **Esfer, S.**, Tısoğlu, S., Kara E. (2017). Research trends of instructional technology dissertations in Turkey. EDEN 2017, 141-148.
- **Esfer, S.**, Cagiltay, K., Gürel, N., Çevik, R.,Teker, M., Alkan S. (2017). SWOT Analysis of 100 MOOC Project. 11th International Computer Instructional Technologies Symposium
- Kaya, K.Y., Çiçek M., **Esfer, S.**, Kara, E. (2017). Evaluation and Comparison of MOOC Portals in TURKEY. 11th International Computer Instructional Technologies Symposium.
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- **Esfer, S.**, Gürel, N., Çevik, R., Teker, M., Cagiltay, K., Alkan, S. (2016). ODTÜ 100 MOOC Projesi Bilgeİş. 10th International Computer Instructional Technologies Symposium.
- **Esfer, S.**, Cagiltay, K. (2015). Learning and Pedagogical Agents: A Literature Review. AECT 2015.
- **Esfer, S.**, Cagiltay, K. (2014). Are pedagogical Agents Effective on learning: A Literature Review. 8th International Computer Instructional Technologies Symposium.
- Özdener, N., & **Esfer, S.** (2009). A comparison of computer-aided ELVES method and video-aided instruction in text teaching in terms of student success. WCES.

National Journal Papers

- Türkiye’de Kitleseİ Açık Çevrimiçi Dersler (KAÇD) ve Türk Yükseköğretimi Bağlamında Bir Değerlendirme (in press).

National Conference Papers

- Küçük, B., **Esfer, S.**, Çelik, B., Cagiltay K. (2017). Bilgeİş - Türkiye’nin En Büyük Kitleseİ, Açık, Çevrim içi Ders (KAÇD) Portalı: Kullanıcı Eğilimleri. TBD 2017
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