

EXAMINATION OF EARLY CHILDHOOD EDUCATORS' PERSPECTIVES
ON TRANSDISCIPLINARY APPROACH



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Approval of the Graduate School of Social Sciences

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ABSTRACT

EXAMINATION OF EARLY CHILDHOOD EDUCATORS' PERSPECTIVES ON TRANSDISCIPLINARY APPROACH

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A research study was conducted to investigate the perspective of early childhood educators on transdisciplinary approach. The participants of study were 20 early childhood educators who worked in public kindergartens Bartın, Turkey. The data was collected with a semi- structured interview. Findings of study demonstrated that early childhood educators have positive perspectives on integration of disciplines. Also, early childhood educators have positive perspectives on transdisciplinary approach such as integrating all disciplines and the compatibility of disciplines with daily life. On the other hand, some of the participants reported negative perspectives on transdisciplinary approach such as its' being difficult to understand and implement and their having lack of teaching resources. In addition, early childhood educators shared their perspectives as transdisciplinary approach has influence on children's learning, children's developmental domains and educational environment. Early childhood educators have positive perspectives on characteristic features of the transdisciplinary approach such as problem-based learning, inquiry-based learning and effective and meaningful learning. Early childhood educators shared their perspectives on possible difficulties of

implementing the transdisciplinary approach due to implementation and deficiencies. Findings of this study revealed that early childhood educators generally have positive perspective toward the transdisciplinary approach.

Keywords: Early Childhood Education, Integration of Disciplines, Integrated Curriculum, Transdisciplinary Education, Transdisciplinary Approach



ÖZ

OKUL ÖNCESİ ÖĞRETMENLERİNİN DİSİPLİNLER ÜSTÜ YAKLAŞIM HAKKINDAKİ GÖRÜŞLERİNİN İNCELENMESİ

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Bu çalışmanın amacı, okul öncesi öğretmenlerinin okul öncesi eğitimde disiplinler üstü yaklaşım konusundaki görüşlerini incelemektir. Bu araştırmanın katılımcıları, Bartın ilindeki devlet anaokullarında çalışan 20 okul öncesi öğretmendir. Veriler, yarı yapılandırılmış görüşmeler aracılığı toplanmıştır. Bu araştırmanın bulguları okul öncesi öğretmenlerinin eğitim programında disiplinlerin birleştirilmesi konusunda olumlu bir bakış açısına sahip olduğunu ortaya koymuştur. Buna ek olarak; okul öncesi öğretmenlerinin büyük çoğunluğunun disiplinler üstü yaklaşım konusunda bütün disiplinleri birleştirmesi ve günlük hayat ile ilişkili olması gibi sebeplerle olumlu bir bakış açısına sahip olduğu ortaya çıkmıştır. Diğer yandan, bazı katılımcılar disiplinler üstü yaklaşımın anlaşılmasının ve uygulanmasının zor olması, öğretim kaynaklarının eksikliği gibi sebeplerle olumsuz bir bakış açısına sahiptirler. Okul öncesi öğretmen adaylarının bakış açısına göre disiplinler üstü yaklaşımının çocukların etkili öğrenmelerine, gelişim alanlarına ve eğitim ortamına katkı sağlayacağını düşünmeleri önemli bulgulardan bazılarıdır. Ayrıca bu çalışmada; okul öncesi öğretmenlerinin disiplinler üstü yaklaşımı uyguladıkları durumda, uygulamadan ve eksikliklerden kaynaklı bazı engeller ile

karşılaşılabileceklerini ifade ettikleri bilgisine ulaşılmıştır. Buna ek olarak; okul öncesi öğretmenlerinin disiplinler üstü yaklaşımın karakteristik özellikleriyle ilgili olarak, problem temelli öğrenme, sorgulamaya dayalı öğrenme ve etkili anlamlı öğrenme gibi unsurlar ile ilgili pozitif bir bakış açısına sahip olduğu görülmüştür. Bütün bulgular göz önüne alındığında, bu çalışma okul öncesi öğretmenlerinin disiplinler üstü yaklaşıma yönelik olumlu bir bakış açısına sahip olduklarını göstermektedir.

Anahtar Kelimeler: Okul Öncesi Eğitimi, Disiplinlerin Birleştirilmesi, Bütünleştirilmiş Eğitim Programı, Disiplinler Üstü Eğitim, Disiplinler Üstü Yaklaşım



To my family...

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LIST OF ABBREVIATIONS

CIRET	International Center for Research and Transdisciplinary Studies
EYFL	The Early Years Learning Framework
IBO	International Baccalaureate Organization
NAS	National Academy of Sciences
NICHD	Early Child Care Research Network
NSF	National Science Foundation
OECD	Organization for Economic Cooperation and Development
PYP	The Primary Years Program
SMET	Science, Mathematics, Engineering, and Technology
STEM	Science, Technology, Engineering and Mathematics
UNESCO	United Nations Educational, Scientific and Cultural Organization

CHAPTER 1

INTRODUCTION

Is there something between and across the disciplines and beyond all disciplines? In the presence of several levels of reality the space between disciplines and beyond disciplines is full, just as the quantum vacuum is full, of all potentialities: from the quantum particle to the galaxies, from the quark to the heavy elements which condition the appearance of life in the universe. (Nicolescu, 1996, p. 3)

Educating the citizens is the fundamental aim of all educational institutions in the 21st century (Gardner, 1999). It is an undisputable fact that tomorrow's world will be very different and will change rapidly. There will be many problems with complexities that go far beyond what people can tackle by traditional ways in society (Kahane, 2004). These complexities around the world are caused by the rapid advancement of economy, and technology, which require unique interconnection between people and societies (Page & Shapiro, 2010). Education which is main part of preparation for participation in a society, and process of education, involves teacher and students who try to have purposeful experience (Dewey, 1938).

Based on the United States National Academy of Sciences' report, it can be said that integration of the fields -such as physics, mathematics, chemical and engineering- is an important method to deal with complex convoluted problems and this integration helps to find new and innovative solution (National Academy of Sciences, 2004). Integration of fields can be achieved in education with the help of designing the curriculum because curriculum is intrinsically dynamic and active (Kenya Industrial Estates, 1999). This dynamism is provided by renewing the curriculum and considering the new ways, approaches, knowledge and concern of arranging the curriculum from time to time (Abagi & Owino, 2000; Kiminza, 2000). Integration of the fields can be obtained by means of curriculum integration. Curriculum integration concentrates on deep learning goals and abilities for learners

(Kim & Aktan, 2014; Merritt, 2008). Curriculum integration has numerous and diverse definitions given by researchers (Drake & Burns, 2004; Jacobs, 1989; Fogarty, 1991). Curriculum integration is a learner-centered way of education in which children participate in their learning process in order to plan their learning experiences about major social issues and children interests with their teachers (Vars, 1993; Aikin, 1942). In fact, the more accepted examples portray the curriculum integration as being thematic, linked, connected, interwoven, correlated, interdisciplinary and multidisciplinary. Curriculum integration provides holistic view of learning. In fact, children have opportunity to see the whole instead of needing learning to be fragmenting into small parts (Brazee & Capelluti, 1995). Curriculum integration avoids traditional field lines when discovering the questions which are related to children. Therefore, curriculum integration is an approach which support children to establish connection between the fields or disciplines (Brazee & Capelluti, 1995). Unless the connections are made between fields or disciplines, children - adults of the future - transmit their learning to new circumstances or structure (Lake, 2001).

Establishing connections between fields or disciplines is attained with the integrated curriculum at the present time. Consequently, it is a moderately obscure term which could not surely described (Hurley, 2001). According to Shriner, Schlee, and Libler (2010), it uses disciplines to investigate a theme of the teaching. Theme is important element of the transdisciplinary approach. It deals with themes of global problems such as unsustainability and human circumstances. In fact, it generally concerns themes about any problems with global effects (McGregor, 2011). Actually, transdisciplinary begins with complicated social issues that cannot be find solution with only disciplinary view (Jahn, Bergman, & Keil, 2012). There are units and themes in transdisciplinary approach. All fields are arranged under a theme and applied through a unit (International Baccalaureate Organization, 2007). A theme can be a problem or topic that help to apply interrelated activities. Thus, themes support deep understanding of topics for children (Ackerman, 1989).

Integrated curriculum establishes meaningful connections between the content and abilities which are comprised of different fields or disciplines (Costley, 2015;

Hardman, 2009; Hinde, 2005; Merritt, 2008; Zhou & Kim, 2010). Its purpose is to build connections in the fields to improve ideas and concerns in the fields (Hinde, 2005; Hooper, Greene & Sample, 2014; Richard & Bennett, 2011).

In other words, integrated curriculum aims to merge certain disciplines (Drake & Burns, 2004). In fact, integrated curriculum provides some educational benefits (Brewer, 2002). At this point, Mustafa (2011) highlights that children who learn with integrated curriculum, have an opportunity to make inter-connections between their classroom experiences and their real life. These experiences based on integrated curriculum prepares children for long-lasting learning. Children experience the topic comprehensively and examine on different aspects of the main topic with the help of the integrated curriculum (Tytler, 2004).

Although integrated curriculum is currently used for curriculum integration, effective pedagogical approaches which integrate different sources of perspectives, knowledge and methods from various disciplines, are still relatively and highly limited (Repko 2007; Repko, Szostak & Buchberger, 2013). In fact, every educator evaluates curriculum concerns, look at the issues differently. Hence, they have a different approach in order to build a curriculum in the process of integration of disciplines (Hyman, 1973). While developing a curriculum, educators create and implement different approaches (Hyman, 1973;Sizer, 1999). Each of different curriculum approaches have advantages and disadvantages, and educators decide the curriculum concerning knowledge of each approach (Jacobs, 1989).

Different approaches to curriculum integration range from single discipline to multi disciplines (Jacobs, 1989). Faunce and Bossing (1958) suggested three approaches such as correlation, fusion, and broad fields. Fogarty (1991) has recommended three fundamental forms, which contained ten ways of curriculum integration. These are; fragmented, connected, nested, sequenced, shared, webbed, thread, integrated, immersed and networked. Jacobs (1989) defined five levels of integration of disciplines for educators such as discipline-based content designs, parallel discipline designs, multidisciplinary units or courses, interdisciplinary units/ courses, integrated day models, and complete programs. Another approach to curriculum

integration is STEM education which aims to prepare children for future of the global world economy (Yakman & Lee, 2012). In addition to STEM education, Burns and Drake (2004) recommended that integration can be made around multidisciplinary, interdisciplinary and transdisciplinary approaches in education.

Despite the fact that curriculum integration take place in a multitude form of approaches, at the top of the curriculum integration level is the transdisciplinary approach (Grady, 1994; Meeth, 1978). UNESCO (2013) describes the transdisciplinary approach as:

An approach to curriculum integration which dissolves the boundaries between the conventional disciplines and organizes teaching and learning around the construction of meaning in the context of real-world problems or themes. (UNESCO, 2013, n.d.)

Transdisciplinary approach provides active learning based on important issues and benefited from several and different disciplines (Harris & Marsh, 2007). In this approach, the content and the theme are similar, and there is no segmentation between the fields (Drake, 1991; Grady, 1994). Transdisciplinary approach focuses on a relevant concept or problem that merges the perspectives of various disciplines in order to make connection with new knowledge and provide deeper understanding to real life problems and experiences (Wilson, 2018). This approach is started with a problem or an issue and a natural connection comes to realize (Benjamin, 1989; Grady, 1994; Meeth, 1978). Transdisciplinary approach tries to arrange curriculum around children's questions and interests. According to Beane (1997), transdisciplinary approach in education is a method which offers a holistic style of teaching and learning and real-life issues. In Turkey, transdisciplinary approach is applied by International Baccalaureate Organization (IBO, 2009). The mission of this program is to provide pedagogical approach to education in terms of learning and teaching with a transdisciplinary style. Children learn best if their learning is authentic and transdisciplinary. In other words, when their learning is relevant to the real world, their learning better (IBO, 2011).

1.1. Transdisciplinary Approach in Early Childhood Education

Education is fundamental for development of not only children, but also society in the early years. Positive and provocative experiences in early childhood period are appreciably critical for children's brain development (Newberger, 1997). In other words, high quality early childhood education supports children's brain and cognitive development, and high-quality early childhood education contribute the later school success of children (Peisner-Feinberg, Burchinal, Clifford, Culkin, Howes & Kagan, 2001; NICHD Early Child Care Research Network, 2005a). Therefore, many new approaches and practices in order to use in the classroom with young children were revealed in the 21st century (Bowman, Donovan & Burns, 2001). One of these approaches is transdisciplinary. The transdisciplinary approach goes across all fields of human action. In fact, it mirrors a world and life that is not restricted to the classroom walls (Marinova & McGarth, 2004). Transdisciplinary approach deals with global problems such as unsustainability and human circumstances. In fact, it generally concerns about any problems with global effects (McGregor, 2011). Actually, transdisciplinary begins with complicated social issues that cannot be find solution with only disciplinary view (Jahn, Bergman & Keil, 2012). There are some characteristic features of transdisciplinary approach such as no boundaries between fields, enhancing critical and creative thinking skills, project-based learning, solving the problem, and learning based on the student-centered and dealing with global problems (Nicolescu, 2007).

An early childhood curriculum based on transdisciplinary approach has been applied in many preschools with the help of the primary years program which is supported by International Baccalaureate (IBO, 2009). The mission of this program is to provide pedagogical approach to education in terms of learning and teaching with a transdisciplinary style. This program based on the transdisciplinary approach. Children learn best if their learning is authentic and transdisciplinary. In other words, when their learning is relevant to the real world, they may learn better (IBO, 2011).

The terminology ‘transdisciplinary’ implies ‘beyond the disciplines.’ Lesson based on transdisciplinary approach is started with a real-life context (Drake, 1998). According to Jacobs’s level of discipline integration, transdisciplinary approach is the last integration level (Jacobs, 1989). There are units and themes in transdisciplinary approach. In transdisciplinary approach, disciplines such as science can be seen as a tool which assist to investigate and describe the world. All fields are arranged under a theme and applied through a unit (IBO, 2007). A theme can be a problem or topic that help to apply interrelated activities. Thus, themes support deep understanding of topics for children (Ackerman, 1989). Using themes has many benefits for preschool children. A unit provides teachers to make connection disciplines to each other. Not only teacher but also children can make connections among disciplines (Freeland & Hammons, 1998). According to Burns and Drake (2004), transdisciplinary approach requires to be arranged. In this way, children can make connections about concepts, topics, questions and experiences based on real world across all of the fields.

1.2. Educator’s Perspectives on Integration of Disciplines

Pratt described the perspective as being: “Specific meanings attached to phenomena which then mediate our response to situations involving those phenomena. It forms conceptions of virtually every aspect of our perceived world, and in so doing use those abstract representations to delimit something from, and relate it to, other aspect of our world. In effect, we view the world through the lenses of our conceptions, interpreting and acting in accordance with our understanding of the world” (Pratt, 1992, p. 204). According to Pratt (1992), perspectives contains three independent components. These are; beliefs, intentions and actions. When these components is arranged for educators, belief means that why intentions and actions are thought to be significant. Intention means that what an educator is attempting to perform. Action means that the way educators teach. Therefore, learning educator’s perspectives relating to certain issues is crucial since educator’s perspectives about curriculum and students have an impact on practice in the classroom (Clark, 1988).

One of the issues which was examined in order to obtain educators' perspectives, is integration of disciplines. Numerous research studies demonstrated that educators confront some problems when they implemented the curriculum integration. In fact, they have difficulties in the process of implementation. These difficulties are; insufficient information about integration, inadequate facilities, and unsatisfied in-service training for curriculum integration, and these affect teacher's perspectives negatively (NAS, 2004; Park, 2007). On the other hand, a research study was made in order to learn the perspectives of pre-service teachers on STEM education. Pre-service teachers generally had positive perspectives on STEM education in general (Uğraş & Genç, 2018). In addition to this, educators saw integration as a beneficial, and they thought that integration provides greater engagement for learners (Lam, Alviar-Martin, Adler & Sim, 2013).

As a researcher may understand from these educators' perspectives about integration of disciplines, connections among disciplines can be made at several ladders of education, but the level of the integration to which it is implemented can be determined and depended by the educators. Educators' knowledge, attitude and expertise in different subjects have influence on how integration occurs. Hence, without doubt, the most important person in the education is the teacher. Teachers who have knowledge, abilities are essential to any curriculum development (Alsubaie, 2016). In addition to curriculum development, teachers can be center of any educational implementations based on the educational approaches, especially new and emergent approaches. Successful educational program and curriculum ought to notice and meet the needs of the society (Johnson, 2001). Absolutely, the world is more and more connected and interdependent (Friedman, 2006). Children who encounter complex problems in life and need to integrate many disciplines in order to solve these problems. However, there is a disposition for implementers such as teachers and legislators that they are unsuccessful to catch the holistic nature of issues and their solutions for education (Clark, Dyson, Millward & Skidmore, 1995).

1.3. Purpose of the Study

The purpose of this study was to investigate the perspectives of early childhood educators about transdisciplinary approach in early childhood education. To learn educators' perspectives about transdisciplinary approach in early childhood education, main research questions have been developed in order to obtain findings.

Questions in this research study are as follows:

Research Question 1: What are the perspectives of early childhood educators about integration of disciplines?

1. a. What are the benefits of integration of disciplines in early childhood education?
2. b. What are the difficulties of integration of disciplines in early childhood education?

Research Question 2: What are the perspectives of early childhood educators regarding the transdisciplinary approach in early childhood education?

2. a. What can be the effects of the implementation of transdisciplinary approach in early childhood education?
2. b. What are early childhood educators' perspectives of characteristic features of the transdisciplinary approach?
2. c. What are the possible difficulties of implementing transdisciplinary approach in early childhood education?

1.4. Significance of the Study

Previous research studies on the transdisciplinary approach mainly focus on its effects on children's learning such as improving critical thinking, literacy and communication skills and inquiry skills (Drake, Savage & Reid, 2015; Guyette, Sochaka, & Costantino, 2015; Tan & Bibby, 2010; Morrissey, Rouse, Doig, Chao & Moss 2014; Kushner, Cochise, Courtney, Sinnema & Brown, 2016). Additionally, there are variety of studies which demonstrate the benefits of utilizing

transdisciplinary approach in education. It was found that transdisciplinary approach and education made contribution and support to children' learning, academic success and motivation (Gough, Sharpley, Vander Pal & Griffiths, 2014). This study also supports utilization of the transdisciplinary approach in education. Another study which was conducted by Durlak, Weissberg, Dymnicki, Taylor and Schellinger (2011) shows that children's social and emotional abilities, attitudes and academic achievement improved in the transdisciplinary approach. All of these research studies supported the implementation of the transdisciplinary approach in education. Unfortunately, there are limited number of studies regarding the early childhood education.

Despite of the fact that these research studies mention many effects on children's learning related to the implementation of the transdisciplinary approach in education there are limited research studies which are concerning teacher's perspectives. According to Lester and Lochmiller (2015), teachers, administrators and children have positive view regarding the transdisciplinary approach in education. In addition to this, it was found that children saw their teachers as a manager of their positive learning experiences. According to the research study mentioned above, there are only a limited number of research studies regarding the transdisciplinary approach in early childhood education. Transdisciplinary approach is a new and unknown concept in Turkey and this study to the the researcher's knowledge will be the first to address the perspectives of early childhood educators, who worked in public schools regarding the transdisciplinary approach in early childhood education. The current research study aims to make contribution to the related literature in terms of focusing on the perspectives of early childhood educators on the transdisciplinary approach. Besides, the researcher has not found any research study which is related to perspectives of early childhood educators who worked in public school. Thus, the current research study can assist to complete this gap. In addition to this, the findings and recommendations of this research study may support useful and helpful data to early childhood curriculum. This study enables people to recognize how Turkish early childhood educators have perspectives about the transdisciplinary approach, and findings of this study can guide and support researchers, educators, policymakers, and administrators for the development of

educational program and early childhood curriculum. Researchers, educators, policymakers and administrators can benefit from findings of this research in terms of improving early childhood program and early childhood education. Findings of this study may make contribution to teacher training programs in universities since courses which include educational approaches such as transdisciplinary approach, can be taken by candidate educators.

Besides, this research study is significant because variety of stakeholders might take advantage of the findings of the study. These stakeholders can be the policy-makers and teachers. The policy-makers might use this research since it provides some knowledge about views of teacher on transdisciplinary approach, and it may enable them to develop new curriculum or program based on the transdisciplinary approach. Further, The National Educational Boards is responsible for the development of early childhood education in Turkey in terms of developing early childhood education program in the country. They determine aims, goals, objectives, educational approach and program (Tekışık, 1995). They may use this study finding for determining aims, goals, objectives, educational approach and program in the future. In addition to this, this research study might be useful for teachers since teachers can implement curriculum or program based on transdisciplinary approach in the future. Teacher's perspective is crucial for creating the curriculum. The teacher is part of the environment that have influence on curriculum (Carl, 2009). Transdisciplinary can be the possible approach to 21st century skills to children for teachers since transdisciplinary learning provide deeper understanding of the life because this approach interests real life problems (Canter & Brumar, 2011). To sum up, the findings of this research study can be useful to teachers, researchers and curriculum creators in Turkey.

1.5. Motivation for the Study

I worked in a kindergarten as a club teacher for 12 months during 2016-2017. I prepared many integrated activity plans for children. At that time, I realized that teaching with an integrated way has benefits for children. In fact, children learn easily with an integrated way. They have opportunity to understand of content

deeply. Then, when I completed the courses in master degree, I selected this topic for my thesis. Actually, selection of the topic was affected by my teaching experiences. I was interested in integrated curriculum. For this reason, I made a research about integrated curriculum. Ultimately, I found the transdisciplinary approach while researching. Actually, I had never heard the transdisciplinary approach before. Transdisciplinary approach attracted my attention because it is a type of the integrated curriculum. Afterwards, I read variety of studies which conducted in different countries about integrated curriculum and transdisciplinary approach. However, I found a few studies about transdisciplinary approach in early childhood education.

The world is changing, and new approaches arise. Because of this change, education have to change in time, especially early childhood education. Everything has a prologue. Children are willing to learn in the early years, and develop abilities in the early childhood education. Educators have a central role in educating the children. They may create a better world for people when they give better education. New approaches such as transdisciplinary approach may affect education positively because this approach specifically deals with today's problems in the world. In this way, children have opportunity to combine what they learn in their kindergarten with their daily life and world. Children may use their learning in their real life. In fact, future generation will be different than today's generation. Transdisciplinary approach can be solution of the education in the future generation. At this point, learning about educators' perspectives on transdisciplinary approach is important because they are implementers of any approach. Because of these reasons, I decided to study transdisciplinary approach in this thesis.

1.6. Definition of Terms

Early childhood education: Intentionally planned education aims to have an impact on children development between birth and primary education (Katz, 1970).

Curriculum: Courses comprising a field of specialization in the primary and secondary educational institution (Canady and Retting 1996).

Integration: It can be as simple as associating with one aspect of a subject field to that of another or as complex as engaging all subject fields to solve a problem (Beane, 1997).

Integrated curriculum: a curriculum approach that use meaningful connections between the skills and content which are contained in different fields (Zhou & Kim, 2010).

Transdisciplinary approach: An educational approach to curriculum integration which extinguish the boundaries between the current disciplines and arrange teaching and learning around the construction of meaning in the context of real-wold issues or themes (UNESCO-IBE, 2013).

CHAPTER 2

LITERATURE REVIEW

In Nature we never see anything isolated, but everything in connection with something else which is before it, beside it, under it, and over it.
(Goethe, as cited in Wood, 1893)

This research study focuses on the perspectives of early childhood educators on the transdisciplinary approach in early childhood education. Besides, this research study aims to investigate early childhood educators' perspectives on the transdisciplinary approach. In this chapter, the researcher mentions the literature review for this research study.

Literature review contains five main parts. First part is about definition of integration. Second part is defining the integrated curriculum, and then approaches to integration of disciplines is mentioned. Lastly, the transdisciplinary approach and education, teacher's perspectives toward the integration and international and national studies about transdisciplinary approach are mentioned in the literature review.

2.1. Definition of Integration

Over the year's efforts have been made to define and describe the integration. Instead of trying to assert one definition of integration, most of the researchers recommend a continuum or rank of approaches based on integration (Applebee, Adler & Flihan, 2007; Jacobs, 1989; Lonning, DeFranco & Weinland, 1998). Davison, Miller, and Metheny (1995) discussed for explanation of the definition of integration in their article. Although educators thought the need for an intermingled and integrated curriculum, the essence of the integration in many interdisciplinary and integrated projects is not clear because integration comes to means diverse

things to diverse educators. This vagueness is apparent in the number of terms which used to define the integration such as thematic, multidisciplinary, interdisciplinary, transdisciplinary, and integrated. Lederman and Niess' (1997) mentioned that most of the educators adopt the terms thematic, integrated, and interdisciplinary synonymously, and this causes the turbulence and confusion. Maybe educators are tried to adopt the words such as thematic integrated and interdisciplinary because there is a little agreement among the definition of integration.

A number of researchers tried to create an extensive all-embracing definition of integration (Nissani, 1995). For instance, Tyler (1949) defined the integration as the horizontal relationship of experiences based on the curriculum. According to Hartzler (2000), integration contains relationships between different contents or disciplines or abilities. Lederman and Niess (1997) give description of integration as a blending of pieces such as science and math, such that the independent parts are not recognizable. They created the metaphor of tomato soup in order to describe the integration. The tomatoes are not able to be noticeable from the water or other components. They defined the concept as a combination of disciplines, in which connections are made between the disciplines, but the two disciplines remain noticeable.

2.1.1. Describing the Curriculum Integration

Curriculum is a written plan sketching out what children will be taught in a course of study, and all the courses are provided and offered by school educators (McBrien & Breadth, 1997). Another description of curriculum was made by Silva (2009), is that concentrates on what children can do with knowledge instead of what elements of knowledge they have, is the nature of 21 st- century abilities. In fact, each school ought to support different thinking and viewpoints to form the decisions regarding the curriculum (McDonald, 1999).

A diverse approach which develops the curriculum, steer away from the subject-centered approach is curriculum integration (Beane, 1993; Relan & Kimpston, 1993). Curriculum integration and its terms related with curriculum integration have

many and different definitions (Fogarty, 1991; Hurley, 1999; Mansfield, 1993; Relan & Kimpston, 1993; Shoemaker, 1991). The more familiar models portray integrated curriculum as a thematic, connected, multidisciplinary, interdisciplinary, coupled, correlated, holistic and comprehensive (Shoemaker, 1991).

Curriculum integration is an intentional planning by educators. They create the learning experiences in order to make better learning for children. Children participate with their teachers to design learning experiences based on children's interests and main social issues in curriculum integration, so it is a student-centred approach (Vars, 1991; Aikin, 1942). Curriculum integration is emphasized on a whole and comprehensive perspective of learning. Curriculum integration support the children to perceive the enormous picture rather the smaller pieces of picture. Curriculum integration neglect the lines of traditional subject while discovering questions which are appropriate to children. Curriculum integration tries to help children to establish connections across and within disciplines, and it is pedagogical approach (Brazee & Capelluti, 1995).

2.1.2. Historical Context of Curriculum Integration

Efforts to integration of disciplines have long history. The practice of discipline integration was started in the beginning of the 20th century, but philosophical roots of discipline integration have been built in the 19th century. Educators try to find ways to develop the educational process, and they try to deal with disconnectedness of compartmentalized teaching. Stack (1961) attributed the philosophical root of the core curriculum as far back as the Herbert Spencer's pieces of the writing in the 19th century. Mathison and Freeman (1997) accredit Herbert Spencer's writings of 1855 in order to build the concept of integration. These efforts minimize lack of the integration across the fields, and the idea of core curriculum was developed. Concept of curriculum integration entitled the 'core curriculum' (Drake & Burns, 2004; Weilbacher, 2000). Concept of the core curriculum concentrates on issues and interests of children have been mentioned in the early 19th century by Herbert Spencer (Drake & Burns, 2004). In addition, Froebel who is founder of kindergarten, believe that there is a unity and contunity of the nature, universe and humanity.

Therefore, there ought to be unity and connectedness among subjects in education. Without connections between subjects, people would be lost in the variety of ideas (Froebel, 1887).

Integration was developed in both ideology and practice by some people such as John Dewey (Bunting, 1987; Fraley, 1977). The progressive movement was started by John Dewey. The progressive movement of the 1930s supported the system of education that was holistic, learner –centered and democratic (Beane, 1997). With the progressive educational movement, John Dewey queried the aim of the education, and he thought that children ought to actively engage with disciplines and experience democracy. Active learning experiences support learning for children (Dewey, 2004). In addition, he thought that separating knowledge within independent disciplines blocks children's ability to comprehend connections between knowledge which is learned from school and experience (Dewey, 2004). He supported learner-centered and inquiry-based education in order to make learning more meaningful to children instead of discipline-based education (Apple & Beane, 1995; Dewey, 2004). Dewey's perspective based on democratic education, and his education arranges units around a theme which use children's interests and ideas from a variety of fields (Kalantzis, Cope & Fehring, 2001). The society needs educated and compliant workers, so these individuals have opportunity to implement these knowledge in workplace if education helps to develop individuals with knowledge (Kalantzis et al., 2001). Rote-learning based education system was seen as adequate learning and teaching, and abilities of critical thinking and problem-solving were underestimated (Klein, 2006). Hence, progressive education was seen as a solution for traditional approaches in education (Buri, 2014; Chrysostomou, 2004). Like Dewey, Montessori was another pioneer who is often connected with progressive movement and education. She created the Montessori Method. She believed that education ought to be individualize to the specific children' interests and needs. Teachers should be a facilitator of learning rather than transponder of knowledge (Thayer-Bacon, 2012).

In addition, Beane is another prominent supporter of Dewey and the progressive education (Brough, 2012; Gehrke, 1998). He suggested three universal aims of

education. First aim is that learning ought to base upon real world issues rather than separating content of the fields. Second aim is that the purpose of school ought to be to make learning relevant and applicable to the children and their interests. Third aim is that worth of children should be reminded since children are human beings with precious feelings and ideas (Parsons & Beauchamp, 2012). Bean believed that curriculum ought to interest with the important questions. Children have about themselves and their environment to support authentic learning and curriculum integration. He recommended that the curriculum can be arranged around thought-provoking and cliff-hanging themes rather than abstract fields (Parsons & Beauchamp, 2012). Fields are combined to meet objectives across the curriculum. Education was viewed as a way in order to eliminate some of community's issues at the time (Kretchmar, 2008). Hence, curriculum integration was a fundamental element of educational reforms during the years of 1950 and 1960s since ideas about curriculum integration dispersed time of the progressive movement (Merritt, 2008). The traditional discipline-based education system was unsuccessful to stimulate children's learning in the 1980 years (Drake et al., 2015). Policies were developed and pursued for the integration of different fields in order to transform the education (Merritt, 2008). It involved approaches such as, team teaching and interdisciplinary curriculum (Drake et al., 2015).

Nowadays, approaches based on the integrated curriculum has been came into the prominence of education in the second decade of the 21st century. There were promising and bright results in policies, practice and research (Drake et al., 2015). Nevertheless, debates about curriculum integration are moderately new because it only became predominantly applied in the 20th century although it had a deep-rooted history (Kim & Aktan, 2014). To sum up, Dewey's educational ideas stimulate the need to integration of disciplines in the early 20th century (Crisan, 2014). Content of disciplines ought to be integrated with its real-life relevance in solving issues (Wraga, 1997).

2.2. Defining the Integrated Curriculum

Reviewing the literature related to the integrated curriculum, it is noticed surely that it is a bit more confused since there are different definitions of integrated curriculum. Despite the fact that integrated curriculum and the diverse approaches which gathered under the same roof of the concept, have had variable period of popularity in the century (Drake & Burns, 2004). However, no consensus has been reached in describing the integrated curriculum. In addition to this, there is no consensus about its levels of implementation (Applebee, Adler & Flihan, 2007; Beane, 1991; Fraser, 2000).

Several researchers define the integrated curriculum. Shoemaker (1991) gave description of an integrated curriculum that this type of education provides separate subjects to bring together different facets of the curriculum into important unit concentrating on broad fields of study. 'Interdisciplinary curriculum' is another concept which is usually used for the integrated curriculum. It means that a curriculum arrangement that pass over fields lines in order to concentrate on extensive life issues or wide fields of study that bond the different sections of the curriculum into meaningful connections (Good, 1973). When children learn with integrated curriculum, they can have relevant and meaningful experiences because teaching and learning is provided in a more comprehensive way. As a consequence, there is general agreement of several researchers that children who were taught with the integrated curriculum have some skills that are needed in the real world. Children who learn with the integrated curriculum may have opportunity to improve their level of thinking (Relan & Kimpston, 1993).

2.2.1. Impacts of the Integrated Curriculum

Various studies provide several impacts for integration of curriculum. Integrated curriculum develops a holistic view of learning (Lipson, Valencia, Wixson & Peters, 1993; Palmer, 1991). Curriculum integration can be effective for children because it makes education manageable and relevant. Children learn better when themes or topics are taught with interconnected way. Holistic view of learning provides depth knowledge of topics. Teacher teach children by dividing knowledge into meaningful

concepts concentrating on a certain topic that is examined from various perspective. Hence, children have deeper understanding of subject's topics, and they have opportunity to see big Picture rather than solitary facts. Learning happen faster when teachers teach with a meaningful context (Caine & Caine, 1991).

Furthermore, integrated curriculum makes learning useful in practice (Aschbacher, 1991; Bonds, Cox & Gantt-Bonds, 1993). Children learn with the help of the curriculum, they use this knowledge in other areas of life (Bonds et al., 1993). In other words, children have opportunity to connect their learning with their real life. People are apt to get to the roof of the problems holistically rather than solely a discipline. Hence, when children have integrated curriculum in their educational life, they can have opportunity to cope with real-life issues. Shortly, integrated curriculum helps children make connection in their learning (Miller, 1990). In addition to this, cognitive scientists have made research about how the brain's operation with the help of the sophisticated imaging technologies, and results of these researches affected the education, curriculum and pedagogy. Recent evidence suggests that the best method to develop a better brain is through challenging problem solving, and this constructs new dendritic connections that help us to make even more connections (Jenson, 1998). Therefore, making connections among different disciplines makes contributions to problem-solving skills for children (Wolf & Brandt, 1998).

In addition to this, integrated curriculum increases teachers and children' motivation to learning and teaching (MacIver, 1990; Edgerton, 1990). Vars (1965) stated that children' motivation to learning increase when they learn with integrated curriculum. Children acquire some skills when they have opportunity to learn how to make research topics or subjects of their own interest (Gamberg, Kwak, Hutchings & Altheim, 1988), and they are active learner in their own learning when their intrinsic motivation is an alternative to their extrinsic motivation (Gardner, 1993). Furthermore, Edgerton (1990) found in his study that the most of the teachers who experience and teach with an integrated curriculum, they are confident teaching integrated disciplines. Also, these teachers have opportunity to explore new teaching methods which increase their teaching practice. In addition, children are more

engaged in integrated program, and less apt to behavior and attendance issues (Drake & Reid, 2010). Lastly, integrated curriculum supports learning style for children. Previous study has reported that connections in integrated curriculum can support children with different learning styles (Maute, 1992). Also, it helps understanding of self for children. Children attain knowledge in the context of interests, issues, concerns and problems when integration happen in the curriculum. Thus, children are boosted to integrate their learning experiences with their schemas of meaning in an attempt to deepen and enlarge their understanding of world and themselves (Beane, 1995).

2.3. Developmentally Appropriate Practices

Developmentally Appropriate Practices (DAP) was a bunch of guidelines which provided by the National Association for the Education of Young Children (Bredekamp, 1987). Developmentally appropriate practices are described as implementing knowledge of child development for deciding regarding the practices in early childhood program (Gestwicki, 2011). According to Copple and Bredekamp (2009), best practices in early childhood program grounded on knowledge about how children develop and learn. In other words, developmentally appropriate practices are a scheme based on children's learning and development, and these practices support children's development. When early childhood educators make decisions about early childhood education, they ought to consider children's development and learning. There are some principles of how children learn and develop in the process of the developmentally appropriate practices (Copple & Bredekamp, 2009).

- Domains of the children's development are interconnected with each other. Each of these affect each other.
- Development in different domains change in every child.
- There are optimal time for certain kinds of learning and development.
- The progress of development has an expected journey towards greater internalization, complexity and organization.

- Different cultural and social contexts have influence on learning and development
- Children have experiences about their world, and they use these physical and social experiences in the process of the constructing their own comprehending the world.

Developmentally Appropriate Practices support educators to alter implementations in the early childhood classrooms (Hart, Burts & Charlesworth, 1997). Children have active role in their learning. Thus, educators support children in order to discover active learning (Van Horn & Ramey, 2003). Also, developmentally appropriate practices based on some principles in the process of constructing the curriculum for young children. One of the principles is that the curriculum ought to be developmentally appropriate (Bredekamp, 2016). Content of the curriculum is determined considering the age and experience of the young children. The curriculum ought to be arranged around the standards of child development and learning. Teaching strategies are determined based on the children's age, and developmental abilities. The curriculum ought to be constructed on prior learning and experience (Gestwicki, 2014). Developmentally appropriate curriculum makes contribution to children's developmental areas such as cognitive and physical. In addition, effective curriculum contains integration of different disciplines in order to support children to establish appropriate connections. It can understood that integrated curriculum is appropriate for developmentally appropriate practices (Bredekamp & Rosegrant, 1995).

2.4. MoNE Early Childhood Education Program of Turkey

Educational policies and practices are managed in Turkey by The Ministry of National Education (MoNE). The curriculum for early childhood education is determined by the MoNE. Preschool education is not compulsory in Turkey (Gelişli & Yazıcı, 2012). MoNE Early Childhood Education Program lastly was updated in 2013. There are main characteristics of this early childhood education program (MoNE, 2013). It is child-centered. Children are free to select what they want to play and which materials to be preferred in their activities. Also, this program is

flexible. This program can be arranged based on the children's interests, family and changes in the classroom environment. In addition, this program is spiral. The indicators and objectives are specified based on the children's needs. Moreover, early childhood education program was created using many models and approaches. It means that it was created based on different models, approaches and programs which applied in different countries. In fact, national needs also considered. Also, indicators and objectives which related to developmental areas of children, are given in a balanced way. In other words, the indicators and objectives are considered and determined for developmental areas of children. Type of activity, places and time are balanced in the early childhood education program. Furthermore, this program based on play. When children play, they have opportunity to learn about themselves, environment and world. Learning by discovery is important in this program. Also, this program support children to be active. In other words, active involvement of children is crucial. Creativity is important part of the early childhood education program. Children's creativity is supported by teachers and activities. Early childhood education program. There are learning centers in this program, and these centers support children's learning. This program contains multidimensional assessment. Educational process is assessed in terms of teacher, child and program. Children have opportunity to discover on different learning centers in the educational environment. Universal and cultural values are important in this program. Parent involvement is another important part of this program. In order to support parent involvement, family support education guide in early childhood education (OBADER) is provided (MoNE, 2013).

There are some types of the activities such as art, math, drama, play and music in early childhood education program of Turkey. These activities are implemented as a group or individual. Some types of the activities can be combined with proper transitions. In this way, integrated activity plan is prepared by educators. MoNE early childhood education program of Turkey encourages educators to prepare and implement integrated activity plan in their kindergarten classroom (MoNE, 2013). There are many types of approaches in the process of the integrating activities such as multidisciplinary approach, interdisciplinary approach and transdisciplinary approach. As the researcher mentioned before, heart of the thesis is transdisciplinary

approach. This approach is type of integrated curriculum (Beane, 1997). Like MoNE early childhood education program of Turkey, transdisciplinary approach benefited from several and different disciplines (Harris & Marsh, 2007).

2.5. Approaches to Integration of Disciplines

Each educator interests with concerns of the curriculum, and evaluate the problems differently. Hence, they create diverse approach to process of curriculum-building. When establishing and creating a curriculum for children, educators select and use different approaches (Hyman, 1973). Each of curriculum approaches have advantages and disadvantages. Thus, educators decide for their educational programs considering features and knowledge of each approach (Jacobs, 1989).

The idea of integration of the curriculum is not new. John Dewey supported approaches of integration early in the century. Curriculum generally divides knowledge and understanding into separate subjects. Even though children obtain knowledge relevant to each subject, their understanding of the subjects may be limited, since "deep understanding often depends on the intersections and interaction of the disciplines." (Barrett, 2001, p.17). The idea of establishing connections between subjects has date in the movement of progressive education in the beginning of the twentieth century (Ellis & Fouts, 2001). Integration is more than simply intertwinement subject topics. Subject topics in the curriculum that can be taught more efficiently connection with each other than separately (Ackerman & Perkins, 1989). In fact, integration can be made in different ways. Therefore, there are many types of approaches in education.

2.5.1. STEM Education

Modern education systems try to accomplish purpose of effective learning and teaching in order to deal with economic problems, developing technologies and different worries of 21st century. Numerous economies focus their attention on the

STEM education which consists main subjects of science, technology, engineering and mathematics (Wells, 2008).

For sustainable economic development and promising future, these subjects are important since occupations based on these disciplines probably improve community's innovation creating new ideas and lines of business. Particularly, STEM education is on the increase in rearmost decade (Beede, Julian, Langdon, Mckittrick, Khan, & Doms, 2011).

STEM education was created by government policy, more specifically of the National Science Foundation (NSF) which merged the disciplines of areas of science, mathematics, engineering, and technology under the title of SMET in the 1990s. Afterwards, the SMET took the place of STEM (Sanders, 2009). This education provides critical thinking skills for children. Thanks to these skills, children are more creative problem solvers. In the long view, they can be demanded person in the labor force. (Butz, Kelly, Adamson, Bloom, Fossum & Gross 2004).

STEM education is referred to as a teaching method that purposes the integration of four crucial disciplines such as science, technology, engineering, and mathematics, containing interdisciplinary and applied approaches. STEM education is mainly identified as a teaching and learning approach from early childhood to university education (Gonzalez & Kuenzi, 2012). STEM education concentrates on science and mathematics disciplines, as well as engineering and technology (Bybee, 2010). According to Bybee (2013), most of the STEM policies aim to teach particular STEM disciplines with methods, specially mathematics and science. On the other side, STEM education concretes technology and engineering to show how lessons of mathematics and science are integrated with scientific implementations. Moreover, STEM education offers qualified education improving life skills and promoting advanced thinking (Yıldırım & Altun, 2015).

Bybee (2013) points out that process of STEM education is different from other educational approach in three major facets: STEM education aims to straighten the challenges of global economic issues. In order to cope with environmental and

technological issues of the world, literacy in STEM disciplines is considered. STEM education centralizes the knowledge needed to improve job-related skills required in the 21st century.

Many benefits of STEM education contain making children better problem solvers, inventors, innovators logical thinkers, and technologically educated (Morrison, 2006). Also, studies have demonstrated that integrating math and science has made an influence on student attitudes in school positively, (Bragow, Gragow & Smith, 1995), their ambition to learn (Gutherie, Wigfield & VonSecker, 2000). The National Academy of Engineering and the National Research Council stated that five benefits of combining engineering in K12 schools such as improving children's achievement in mathematics and science, enhancing awareness of engineering, understanding engineering design, and enhancing technological literacy (Katehi, Pearson & Feder, 2009).

2.5.2. Faunce&Bossing's Approaches of Integration

Faunce and Bossing (1958) suggested three approach to reshape the curriculum such as correlation, fusion, and broad fields.

2.5.2.1. Correlation

It is the maintenance of the separateness of one discipline from other disciplines, but exhibiting interrelations among the contents.

2.5.2.2. Fusion

It contains the merging of two or three disciplines by joined the content of these disciplines into one.

2.5.2.3. Broad Fields

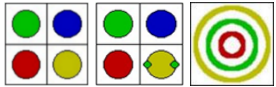
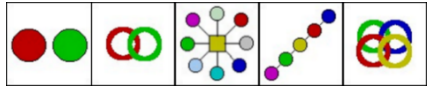
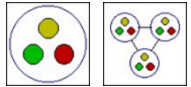
Combination of many disciplines into one broad area is an expanded form of fusion, but passes beyond merging two or three disciplines.

2.5.3. Fogarty's Ways of Curriculum Integration

Fogarty (1991) has recommended three fundamental forms, which contained ten ways of curriculum integration. He defined these three forms and ten approaches (See Table 1 and 2).

Table 1

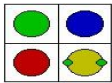
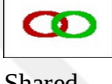
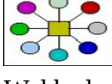
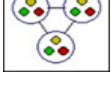
Fogarty's Three Fundamental Forms for Curriculum Integration (Fogarty, 2009, p.13)

		
Within a Single Discipline	Across the Disciplines	Within and Across Learners

In the fragmented way of integration, courses are broken down in traditional fields of study such as science, mathematics, social studies, humanities, and art. Also; in the nested way, integration is made by explicitly making connections or designing combinations in this way. This integration way is fulfilled in a lesson on the circulatory system by having the lesson concentrates on both the circulatory system and the conception of the systems. In the sequenced way of the integration, students can learn probability topic in math and genetics topic in science at the same time, and teachers arrange and teach these lessons at the same time. In the shared way of integration, partner teachers investigate what concepts, topics and units which have in common. In the webbed way of integration, teachers of different disciplines find and decide common concepts, topics and skills. Themes create the base of the curriculum. In thread way of integration, teachers give ideas about how an individual learns and helps to learning which can support the students improve their metacognitive skills. In an integrated way of the integration, teachers try to work together in whole disciplines to explore coinciding ideas and concepts around which they can arrange and plan units of study and apply them in teaching process. In immersed way of the integration, doctoral students are generally deeply involved in an area of study. These students merge all information to find the question's answer or solve a problem. In a networked way of integration, it constructs multiple aspects and directions. It is a totally student centered. Learners can control the integration process (Fogarty, 1991).

Table 2

Fogarty's Ways of Curriculum Integration (Fogarty, 2009, p.13)

 Fragmented	The fragmented way of integration is a design which based on the traditional curriculum. Topics and courses are separated into discrete disciplines
 Connected	A connected way of integration concentrates on the details. It is a simple form of integration since it tries to make connections between one topic or skill and another topic or skill.
 Nested	Integration is made by explicitly making connections or designing combinations in this way.
 Sequenced	Units and subjects are taught independently, but they are organized to provide a model for connected concepts. Teachers organize topics. In this way, similar units are combined.
 Shared	Shared way of integration bands two different disciplines together into a single point. It coincides with concepts as the organizer. Teachers of the two different disciplines arrange and plan their teaching which occur in the independent classes together in this shared approach.
 Webbed	Webbed way of integration commonly uses a thematic topic to merge subject matter. Thematic topics can be change, discovery, interaction, cultures, environments, inventions, power, time, systems and work.
 Thread	Thread way of integration is applied around specific thinking, study or social skills. Content of the disciplines becomes the channel for these skills to be learned.
 Integrated	In an integrated methodology interdisciplinary Topics are organized around coinciding concepts in integrated way. Disciplines are merged by exploring coinciding skills, attitudes, concepts, and explored across the disciplines.
 Immersed	The immersed way of integration concentrates on whole all curriculum content on knowledge and interest.
 Networked	A networked way of integration constructs multiple aspects and directions. It is a totally student centered. Learners can control the integration process.

2.5.4. Jacobs' Six Levels of Integration of Disciplines

Jacobs (1989) defined five levels of integration of disciplines for teachers and administrators. Many options for integration of the curriculum was introduced. These are; discipline-based content designs, parallel discipline designs, multidisciplinary units or courses interdisciplinary units/ courses, integrated day models, and complete programs (See Table 3).

Table 3

Jacobs' Six Levels of Integration of Disciplines in Detail (Jacobs, 1989, p.14)

Discipline-based Content Design	This design means separate disciplines in separate time during the learning process in the school. Knowledge is given in separate areas without an intentionally try to establish the relationships of areas.
Parallel Discipline Designs	Educators order their lectures in parallel to the same disciplines in other areas. The content of lecture is constant.
Complementary Discipline Units or Courses	A number of related disciplines or subjects are banded together in a unit to examine an issue or theme. It is likely to create units which band together two fields of disciplines with dissimilar characters, as long as the questions brighten, complement and integrate one another discipline.
Interdisciplinary Units/Courses Design	Units intentionally band together the whole range of fields in the curriculum periodically. A whole group of discipline-based perspectives are tried to use. The units have particular durations such as five days or a semester.
Integrated-Day Model	It is a full-day educational program which focuses on issues arising from the children' world. This model use classroom life as a base.
Complete Program	This design focuses on the students' life on campus. Students who live in the educational environment and design the curriculum out of their day-to-day lives.

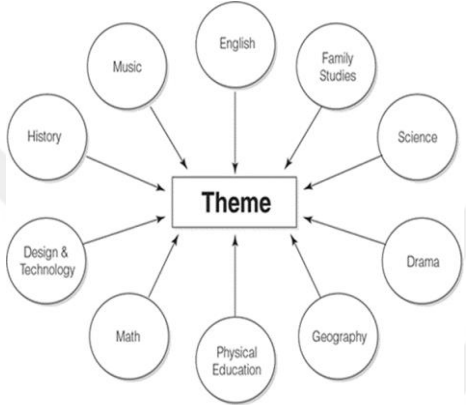
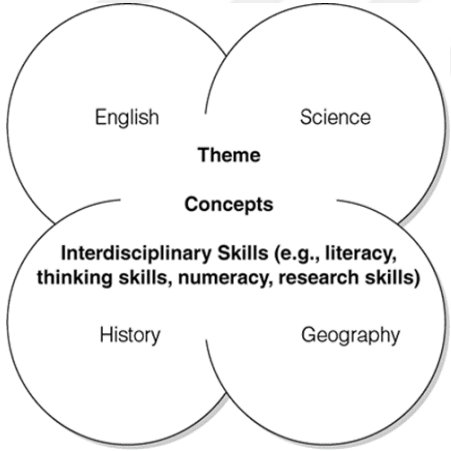
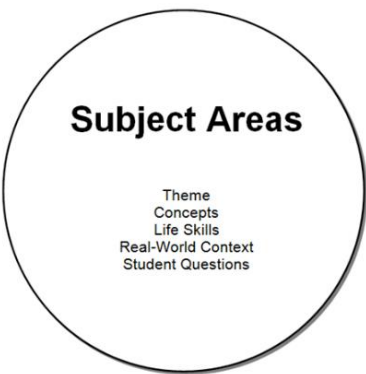
Discipline-based content design is an approach with no effort for integration. In this program, general academic fields break down into more specific disciplines. Discipline-based content design which are used by administrators, teachers and students, is the most extensive format. Also; in parallel discipline designs, educators who work in a parallel area are plainly sequence their educational program since children establish implicit linkages. In other words, teachers sequence their lessons to coincide with the lessons in the same field in other disciplines. Another design is complementary discipline units or courses. Complementary discipline units are that it is needed less effort in contradistinction to an interdisciplinary unit. Design of process is easier because connections between disciplines of knowledge are given. Also, interdisciplinary units/courses design is providing a broad stimulating experience for children. Teachers have opportunity to organize their interdisciplinary work around issues or themes which arise from their curriculum. Also, curriculum of the integrated-day model is composed of children' interests and questions rather than on predetermined content by administrators and teachers. Lastly, complete program is the most integrated model which the life of the student is the center for the school. Students notified feeling allowed by a sense of independence instead of dependency supported in more traditional programs (Jacobs, 1989).

2.5.5. Burn&Drake's Integration of Disciplines

Similarly, Burns and Drake (2004) stated that integration can be made around multidisciplinary, interdisciplinary and transdisciplinary approaches in education (See Table 4).

Table 4

Burn & Drake's Integration of Disciplines (Burn&Drake, 2004, p. 27)

	Multidisciplinary approach: it mainly centers upon the disciplines. Educators who use this approach arrange the disciplines around a theme. In other words, different disciplines establish the relationship to each other around the common theme.
	Interdisciplinary approach: teachers arrange the curriculum around common learnings through the disciplines in this type of the multidisciplinary approach to integration. Disciplines try to give priority to interdisciplinary abilities and concepts. The disciplines can be detectable and identifiable, but they consider less significance than the multidisciplinary approach
	Transdisciplinary approach: teachers arrange the curriculum around students' concerns, questions and interests in the transdisciplinary approach to integration. Students have opportunity to develop life abilities as they implement interdisciplinary and disciplinary abilities in a real-life context.

In multidisciplinary approach, different disciplines establish the relationship to each other around the common theme. In other words, multidisciplinary approach tries to examine a topic from the perspectives of more than one discipline and try to find a solution to problem using a various discipline (Klaassen, 2018). In multidisciplinary approach, teachers arrange their instruction so that children are encouraged to make meaningful connections among disciplines. For instance, mathematics, English, science teacher's work together to plan their lecture that center around a topic or theme or problem (Steinberg, 1997). Content of the subject is the central of the plan, and the theme is usually the only similarity among subjects (Drake & Burns, 2004). When teachers use multidisciplinary approach, they plan and work around the chosen theme. Theme is planned from the perspectives of disciplines. Teachers usually determine the theme, and children interest take into consideration from teachers about determination of the theme. (Brazee & Capelluti, 1995). Multidisciplinary focuses several fields on one problem with no try to integrate (Jacobs, 1989).

Another type of integration is the interdisciplinary approach. In this approach, disciplines try to give priority to interdisciplinary abilities and concepts. The disciplines can be detectable and identifiable, but they consider less significance than the multidisciplinary approach (Drake & Burns, 2004). Jarvis (1990) interdisciplinary regards as a study of a phenomenon that contains the use of two or more academic subjects simultaneously. The unit is prepared around a theme or topic and the children learn interdisciplinary skills. According to Fogarty (1995), interdisciplinary approach contains the major fields such as English, Science and Math and these fields are arranged for children in order to use skills to discover commonalities. Interdisciplinary learning supports teachers to communicate and collaborate in the process of planning (Gardner, 1995). For instance, interdisciplinary approach is implemented in the school in Florida, and students have experience about interdisciplinary curriculum. Students have opportunity to learn the interdisciplinary abilities of communication. The teachers also emphasize on big ideas about the topic. These ideas are transferred to the other lessons. Students may have a higher level of thinking (Drake & Burns, 2004).

Another type of the integration is the transdisciplinary approach. Teachers arrange the curriculum around students' concerns, questions and interests in the transdisciplinary approach to integration. Students have opportunity to develop life abilities as they implement interdisciplinary and disciplinary abilities in a real-life context (Drake & Burns, 2004). There are two paths for the transdisciplinary integration. These are project-based learning and negotiating the curriculum. One path is project-based learning. Students deal with a local issues or problems in project-based learning. Some schools rename this problem-based learning or place-based learning (Drake & Burns, 2004). Planning process of the project-based curriculum contains three steps (Chard, Simmons & Kameenui, 1998). First step is choosing a theme of study relying on the student interests, standards of the curriculum, and resources in local region from teachers and students. Second step is that teachers discover what the students already have knowledge about the theme and helps them create questions to discover (Chard et al., 1998). Also, teachers give resources to students. Third step is that students share their project with others in an activity. Students exhibit the results of their investigation and appraise the project. A study about project-based learning demonstrates that project-based learning provides students to have many benefits. Students establish connections among different disciplines to answer open-ended questions, and reacquire what they have learned, and implement learning to real-life issues with minimum effort. Also, students have fewer discipline issues and have more attendance to the school (Curtis, 2002). To set an example, a school implemented the project-based learning in Ontario, and students tackled on the issue of improving the image of the city. Students finished project work in an independent in the school day. After comprehensive research, students create the proposals to reestablish or increase the image of city and exhibited the proposal to a group. Students evaluate teamwork, critical thinking skills, time management and problem solving (Drake, 2000). Also, negotiating the curriculum is another path of the transdisciplinary approach. In this form of the transdisciplinary approach, student questions form the basis for curriculum (Drake & Burns, 2004). For instance, negotiated an integrated curriculum is implemented from Mark Springer of Radnor in Pennsylvania. His curriculum program is Soundings. In this curriculum program, students create and develop their own curriculum, assessments, teaching methods around fields of

concerns and interest to them. Themes which are violence in culture, medical problems impacting lives and surviving alien environments, students created and developed (Brown, 2002). In fact, the program of Sounding came from the work of James Beane (1990, 1997). Beane (1990, 1997) interested the topic of studies about personal growth and social problems.

2.6. Describing the Transdisciplinary Approach and Education

Variety of approaches toward to integration has been created by educators over the years. Education has traditionally been separated into the study of particular disciplines. Nevertheless, this began to change during the middle of the twentieth century with the help of the educational approaches such as transdisciplinary approach. In this part, transdisciplinary approach and education is examined in many aspects in detail.

2.6.1. Definition of the Transdisciplinary Approach and Education

There are various definitions of transdisciplinary approach. Gardner defined the term ‘transdisciplinary’ ‘‘as being of, or relating to, a transfer of information, knowledge, or skills across disciplinary boundaries’’ (Gardner, 1995, p.33). According to Beane (1995), transdisciplinary means knowledge cutting across the knowledge residing within the disciplines. The terminology ‘transdisciplinary’ implies ‘beyond the disciplines’ (Drake, 1998). On the other hand, UNESCO defined the transdisciplinarity that include going between, across and beyond different subject areas to improve experience of learning (UNESCO, 2013). Nicolescu (1999) described the transdisciplinarity deals with the disciplines, across the various disciplines, and beyond all disciplines. Its aim is to understand the today’s world. Transdisciplinarity requires a new vision. According to Canter and Brumar (2011), it is broad framework which aims to go beyond merging existing disciplinary approaches in an interdisciplinary fashion to design new frameworks, new encompasses syntheses. Burger and Kamber (2003) describe that it takes an interest in the unending and constant interaction of whole fields, and it requires knowledge from across fields to integrate in order to attain viable solutions.

2.6.2. Mission of Transdisciplinary Approach and Education

Mission of the transdisciplinary approach is to understand the world. There is a way to provide integrity of knowledge from different disciplines (Nicolescu, 2007). In addition, Ertas (2000) states that the aim of the transdisciplinary approach is for children to develop a whole understanding of the world where children live. A transdisciplinary education program is established around a basis design, process and integration. The basis is then enclosed by knowledge and skill selected from different disciplines.

2.6.3. Historical Theoretical Origins of the Transdisciplinary Approach and Education

There is general concurrence that the world requires a conscious unification and cooperation of the views of technology, science and economics. With the development of the technology, people realize that there is relationship between problems such as poverty and population growth. The transdisciplinary approach aroused because of growing concern for economic and social changes and progress, the use of natural resources. The word transdisciplinarity firstly found voice in 1970 by Piaget at an Organization for Economic Cooperation and Development (OECD) congress in France in order to improve teaching methods in the university level. Piaget's view grounded on his observations of young children (Canter & Brumar, 2011). In addition to Piaget, Nicolescu asserted that transdisciplinarity has been "in a kind of sleep because nobody really succeeded in capturing what this was really about—beyond the disciplines." (Volckmann, 2007).

Basarab Nicolescu who is pioneer of the transdisciplinarity and transdisciplinary approach, is a creator and president of the International Center for Research and Transdisciplinary Studies (CIRET). Nicolescu mentioned this concept in his book named '*Nous, la particule et le monde (Us, the Particle and the World)*' (Nicolescu, 1985). He described the transdisciplinarity deals with the disciplines, across the various disciplines, and beyond all disciplines. Its aim is to understand the today's world. Transdisciplinarity requires a new vision (Nicolescu, 1999). He was

interested with the rate at that disciplinary-bound knowledge was being created without any connection with world. Nicolescu expressed that there are plenty of disciplines, and there were more than 8,000 apparent, discrete disciplines of knowledge (Nicolescu, 1985). He asserted that 8,000 fields imply 8,000 ways to examine the reality. It means a tragedy for knowledge in some ways since it means there is no consensus and integrity of knowledge (Nicolescu, 2007). Researchers who are supporter of his ideas, described the 'disciplinary-bound knowledge' that it is meaningless knowledge, and disability to implement of knowledge (Janz, 1998; Plessis, 2012). In addition to ideas of Nicolescu, transdisciplinary approach was greatly declared at the Zürich Congress (Thompson Klein, Grossenbacher-Mansuy, Haberli, Bill, Scholz & Welti, 2001).

Jacque Delors, who were chair of UNESCO of the International Commission on Education, stated that education is the center of both personal and society development. Its aim to develop individuals' abilities to make real creative potential, involving responsibility for his/ her own life and accomplishment of personal missions (Delors, 1996). In order to make real this aim, four pillars of education are provided by UNESCO. These are; learning to know, learning to do, learning to live together with, and learning to be (UNESCO as cited in Delors, 2013). First pillar is learning to know, it means that learning how to learn by improving abilities of thinking concentration and memory. Second pillar is learning to do, it implies practicing with knowledge and learning. Third pillar is learning to live together, it describes living with peace and harmony with other people. Fourth pillar is learning to be, it means the multifaceted development of the entire individual, to make real his/her highest potential, and behave independently with creativity and innovation (Delors, 2013). In this context, the transdisciplinary approach can make an important contribution to the advent of this new type of education, especially four pillars of education (Nicolescu, 1999). In fact, although transdisciplinary approach is a global and longtime process in education, it is crucial to explore and to design the places that try to begin this global and longtime process (Nicolescu, 1999). The transdisciplinary approach mirrors a worldview that is not restricted to the classroom walls, but rather goes across all fields of human actions (Marinova & McGarth, 2004).

2.6.4. Characteristic Features of the Transdisciplinary Approach and Education

There are some characteristic features of transdisciplinary approach and education. One of the characteristic features of transdisciplinary approach is that there is no boundaries between fields (Nicolescu, 2007). This characteristic feature of transdisciplinary approach was made a metaphor by some researchers. For instance, the boundaries between fields are like boundaries between oceans, continents and states on the superficial of the world. These boundaries are waving in time. However, a reality remains consistent: the continuity between regions (Thompson et al., 2001). Another metaphor was made by Nicolescu (2007), and he described the boundaries between disciplines like a universe. For him, fields are like the segregation between solar systems, planets, galaxies and stars. It is the motion itself that produces the waves of boundaries. In addition to this, one of the characteristic features of transdisciplinary approach is that it encourages critical and creative thinking. According to Huitt (1998), outcomes of the critical thinking concentrates on activating the learners, and this is a basic feature of transdisciplinary learning. In addition to critical thinking, creative thinking is crucial in the process of the transdisciplinary approach.

Also, project-based learning is another characteristic of transdisciplinary approach. Curriculum which based on project-based learning support the collaboration of different disciplines. Projects help children to have essential abilities such as creative thinking, collaboration skills and authentic critical thinking (Smyth, 2017). In fact, these abilities are required for performing of the transdisciplinary approach. The project-based curriculum with a transdisciplinary approach supports children' the highest levels of critical thinking in order to describe and analyze global issues such as economic, social and environmental problems. The transdisciplinary approach supports collaboration in group to find potential solutions in the process of teaching (Smyth, 2017). Another characteristic feature of transdisciplinary approach is that it interests with solving problems.

In addition to this, one of the characteristic features of transdisciplinary approach is that learning is student-centered. Learning is the duty of the students. Students who

participates in transdisciplinary learning, use a joint conceptual theoretical framework that gather theories, approaches and concepts from the pair fields. It supports collaborative decision making in the whole learning process. The students not only listen to the theoretical schema recommended by their pair disciplines, but transmit the knowledge attained from outside fields to their own certain subjects (Rosenfield, 1992).

Furthermore, one of the characteristic features of transdisciplinary approach is that it deals with global problems such as unsustainability, poverty, economic expansion, protecting biodiversity in nature, developing countries and the human circumstances. In fact, it generally concerns about any issues with global effects (McGregor, 20011). In other words, transdisciplinarity begins with complicated communal and social problems that cannot be find solution with only disciplinary view (Jahn, Bergman & Keil, 2012).

2.6.5. Impacts of the Transdisciplinary Approach and Education

An examination of the literature demonstrates that a transdisciplinary approach can support children about improving skills and values which are required to be competent in a global world such as critical thinking and communication skills (Drake et.all, 2015). In addition, using transdisciplinary approach in the process of the teaching and learning provides academic outcomes which are better than approaches based on traditional disciplinarity (Guyette, Sochaka, & Costantino, 2015; Sillisano et al., 2010; Tan & Bibby, 2010).

A research was conducted in four schools in Australia and Singapore, and its purpose is to discover children's learning results in the early years of the Primary Years Programme based on transdisciplinary approach and education. It is found that literacy skills of children were well improved. In fact, children were improving learning skills better than a comparative other sample of children, and children who had the Primary Years Programme based on transdisciplinary approach and education, had performance better about school readiness (Morrissey et al, 2014).

Researchers investigated children success in school which applied the Primary Years Programme based on transdisciplinary approach and education in New Zealand. They found that children success within the Primary Years Programme schools mostly outperformed success among schools with comparable children sample. It encourages inquiry in classroom. Also, children showed responsibility in their own learning, and teachers played a role of facilitator (Kushner et al., 2016).

Lester and Lochmiller (2015) conducted a case study in Colombia in order to investigate the views of teachers, children and administrators, teachers within four the Primary Years Programme based on transdisciplinary approach and education schools. Findings of this research demonstrates that teachers, children and administrators widely view the Primary Years Programme based on transdisciplinary approach and education positively which was implemented in four schools. In addition to this, results of children' interviews show that children saw their teachers as a manager of their positive learning experiences.

A study was conducted in Australia in order to investigate the effects of Primary Years Programme based on transdisciplinary approach and education implementation in state primary schools. Children' results of the reading and numeracy were better than the similar children in other schools. In addition to this, teachers in these primary schools thought that Primary Years Programme based on transdisciplinary approach and education made contribution to children' learning, academic success and motivation (Gough et al., 2014).

A transdisciplinary program based on socioemotional learning was implemented in school. Researchers found that children who participated in transdisciplinary program based on socioemotional learning, showed importantly developed social and emotional abilities, attitudes and academic achievement, compared to control group of children. In short, a transdisciplinary program based on socioemotional learning had positive impact on children in many aspects (Durlak et al., 2011).

2.6.6. Transdisciplinary Approach and Education in the Context of the Early Childhood Education

An early childhood curriculum based on transdisciplinary approach has been applied in many preschools with the help of the International Baccalaureate Primary Years Program (IBO, 2009). The purpose of this program is to provide pedagogical approach to learning and teaching with a transdisciplinary style. This program was implemented in the school where show a commitment to transdisciplinary approach. The curriculum based on the transdisciplinary approach provides opportunities for children' learning. This curriculum fulfils the different needs of the children physically, socially and intellectually. The Primary Years Program (PYP) guarantee that the children's learning is engaging, relevant, significant and challenging in the curriculum. There are five vital elements in this program which based on transdisciplinary approach. These are knowledge, skills, concepts, action and attitudes (See Figure 1).

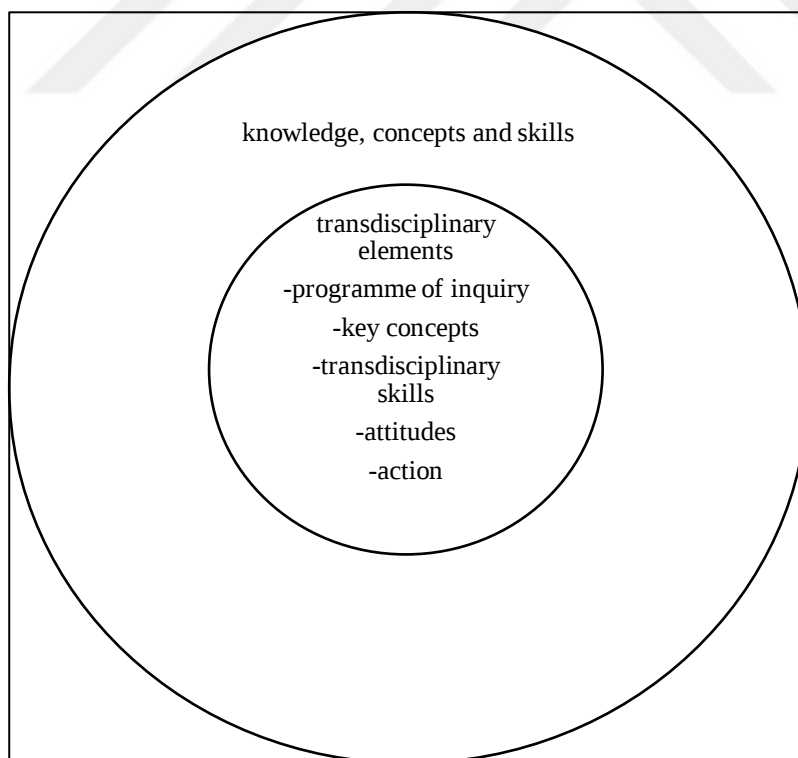


Figure 1. Vital Elements of the the Primary Years Program Based on the Transdisciplinary Approach (International Baccalaureate Organization, 2009)

Children learn best if their learning is authentic and transdisciplinary. In other words, when their learning is relevant to the real world, their learning gets better (IBO, 2010). In this program, learning environment is provided authentically and coherently. The primary year's program permits transparent connections in the process of teaching and learning. In this way, children are conscious of the relevance of the learning to their reality and also are motivated to respond with a high level of engagement. There is a repetitive relationship between the written, taught and assessed components in the primary years program curriculum. The output of this program is an educational experience for children and teacher. There are five important elements in the written curriculum such as knowledge, concepts, skills, attitudes, action. These elements make contribution to a transdisciplinary learning experience. In determination of the Primary Years Program's transdisciplinary themes, the view and the role of the children have been considered. Children's preference is significant (Drake, 1998). Language is important in a curriculum based on the transdisciplinary approach (IBO, 2009). The language used to determine the themes, and children actively construct their meaning with the inquiry (IBO, 2009). Themes in this program are "who we are, where we are in place and time, how we express ourselves, how the world works, how we organize ourselves and sharing the planet" (IBO, 2009). Inquiry is important in this transdisciplinary program. A high level of collaboration is needed in the process of planning transdisciplinary units of inquiry. Children learn and investigate the local and global problems in the context of units of inquiry, each of which contain a certain transdisciplinary theme. Each of these units provide important experience and make contribution to a coherent program, and also transdisciplinary themes support the discovery of a central idea. With the units of inquiry, the significant elements are combined into a meaningful whole, this provided a coherent teaching and learning.

Moreover, the primary years program has key concepts such as form, function, causation, change, connection, perspective, responsibility and reflection. It assists the children to construct meaning through improved critical thinking and the transfer of knowledge and understanding. These concepts support the investigation of significant and authentic content. The transdisciplinary themes provide children's inquiry. These inquiries help children to obtain and implement a set of

transdisciplinary skills such as social skills, thinking skills, communication skills, self-management skills and research skills. These skills are pertinent to all learning, formal and informal, in the school, and in actions experienced beyond its boundaries. Attitudes is another important element of this curriculum. Attitudes are tendency of beliefs, feelings, and values about learning, people and the environment. Teacher aims some attitudes such as commitment, appreciation, confidence, creativity, cooperation, curiosity, empathy, enthusiasm, integrity, independence, tolerance and respect during the year. All children in the primary years program have responsibility to take action (IBO, 2009). Assessment was made with two methods such as summative and formative assessment, and considering all elements of the program such as knowledge, action and skills (IBO, 2007). In the Primary Years Program, curriculum helps children' conceptual understanding, and provide transdisciplinary connections for children. Development and learning are complementary in this program (IBO, 2008).

Using a transdisciplinary approach need teaching strategies, and teachers have role of facilitator and guide children in solving problems in order to be successful curriculum based on transdisciplinary approach (Relan & Kimpston, 1991). Gardner (1995) stated that teacher skills are vital for a transdisciplinary approach to work across different disciplines. A teacher should increase their knowledge and skills within the subject they teach. In addition, they can have an awareness of the terminology and aspects of other discipline fields. In fact, engaging with the concept of transdisciplinarity forces teachers to get out their comfort zone, a reason why the needed high level of collaboration with other teachers and children is significant, as demonstrated in the IB Program standards and practices.

The terminology 'transdisciplinary' implies 'beyond the disciplines.' Lesson based on transdisciplinary approach is started with a real-life context (Drake, 1998). According to Jacobs's level of discipline integration, transdisciplinary approach is the last integration level (Jacobs, 1989). There are units and themes in transdisciplinary approach. In transdisciplinary approach, disciplines such as science can be seen as a tool which assist to investigate and describe the world. All fields are arranged under a theme and applied through a unit (IBO, 2007). A theme

can be a problem or topic that help to apply interrelated activities. Thus, themes support deep understanding of topics for children (Ackerman, 1989). Using themes has many benefits for preschool children. A unit provide teachers to make connection disciplines to each other. Not only teacher but also children can make connections among disciplines (Freeland & Hammons, 1998). According to Drake and Burns (2004), this approach requires to be structured. In this way, children can make connections about concepts, topics, questions and experiences based on real world across all of the fields. Moreover, the key learning areas help children to make particular connections and provide them to discover the key questions developed within the unit of disciplines.

In conclusion, a transdisciplinary approach is viewed like a ‘baking a chocolate cake’ by Graham (2005, p.136). Each subject within the study is an ingredient to help the discovery. In this study, Jacobs’s levels of discipline integration (1989) and Drake & Burn’s integration of disciplines (2004) was taken into account and transdisciplinary approach was determined to be investigated.

2.7. Teacher's Perspectives toward the Integration in the Education

Teachers’ perspectives toward the integration and their understanding of the approach to the integration are crucial to process of the curriculum integration, and its proper implementation. Hargreaves & Fullan (1998) and Darling-Hammond & Richardson (2009) stated that teachers are essential participants in curriculum. Teachers interpret aims of curriculum and learning experiences of students based on their views about education, their knowledge, comprehending of policies, and their past and current experiences of practices. Though theoretical frameworks are surely comprehensive, detailed and thorough, teachers who do not comprehend these frameworks will not be able to successfully apply integration of the curriculum. Eventually, the essence of learning and teaching is highly relying on teachers’ views and beliefs and their sensed capacities in order to accomplish learning aims within their contexts of education and profession (Pajares, 1992).

Many studies about teachers' perspectives toward the integration have reported issues that teachers have experienced in applying the process of the curriculum integration, involving insufficient information about integration, inadequate facilities, and unsatisfied in-service training for curriculum integration which affect teacher's views negatively (Na, 2004; Park, 2007).

A study that was conducted in Korea, and investigated how elementary teachers apply curriculum integration in their practice of teaching, and what elementary teachers have experience in applying curriculum integration. Interview was made with the elementary teachers as a research method. Researcher found that there are several issues evolved from the analysis of elementary teachers' experiences. First issue is that the teachers' knowledge is inadequate about theoretical frameworks for curriculum integration. Second issue is that teachers have pragmatic attitudes to curriculum integration. Third issue is that there are some limitations on applying the curriculum integration such as grammar of schooling, parents' requests and school structure (Park, 2008).

On the other hand, a research was conducted in Canada by Hargreaves and Moore (2000). They interviewed with 29 teachers who used integrated approaches in their classroom. The teachers reported that when they use integrated approach as an educational method, students had positive outcomes such as higher-order thinking, problem-solving, creativity, collaboration and also, they used knowledge to deal with real life problems. In addition to this, teachers reported that integration of curriculum is beneficial and demanding.

In addition to this, a qualitative study was conducted in Singapore by researchers in 2013. Researchers investigated eleven Singapore teachers' understanding of learning and teaching as pertain to their experiences applying integrated curriculum. Interviews proclaimed that the teachers saw integration as a beneficial, and they thought that integration provides greater engagement for learners. However, teachers stated that some obstacles such as insufficient subject knowledge may arises when integration is implemented (Lam et al., 2013). All teachers thought that creating a time for teachers to meet, collaborate and work out the school was

challenging. Although teachers who participated in smaller-scale integration attempts, many of teachers expressed that the necessity for effort and time to improve materials, schedules and plan is essential. Furthermore, teachers narrated that a high percentage of school-based integration based on interdisciplinary approaches occurs in the school, and subjects were arranged around a theme. Transdisciplinary approaches which arrange curriculum around students concerns and questions were rare. Responses of the participant teachers demonstrated that resistance of the transdisciplinary approaches came from four issues that have been remarked by other researchers (Grossman et al., 2000; Lam & Chan, 2011). These are; teachers perceived insufficient subject knowledge, teacher branch identification, inadequate resources and time required for development of curriculum and misalignment between subjects and evaluation. In sum, even though teachers had comparatively limited experience about integration in this study, the most of teachers have positive views of integrated curriculum (Lam et al., 2013).

Furthermore, a multi-case case study was conducted with three school teachers in order to gain a better understanding of teachers' perceptions and views about classroom experiences using STEM integration. Findings from the case studies recommend that teachers have awareness of the need to learn more content knowledge about STEM integration. All of three teachers thought that science, mathematics, and engineering are linked in a very natural way, and problem solving has a significance role in integrating engineering into mathematics and science. They also believe that prior knowledge and content knowledge is significance in order to be successful in integration of STEM. Even though all of the teachers interrelated with science, mathematics, and engineering, they had a difficulty in how to integrate technology in their practices. All three teachers have positive view about how STEM integration enhance students' confidence level in learning mathematics and science. Additionally, they believe that integration enhances students' interest in learning more about STEM subjects (Wang et al., 2011).

Moreover, a study was conducted in Turkey in order to investigate the views of pre-service preschool teachers on STEM education (Uğraş & Genç, 2018). 35 pre-service preschool teachers who implemented STEM education program, was

interviewed by researchers. Pre-service preschool teachers generally had positive views on integration of STEM education approach in general.

In addition to this, a study was conducted in Egypt in order to examine in-service science teacher's views of integrating Science, Technology and Society (STS) into the science curriculum. Teachers were interviewed by researchers. Findings of the study show that if developers of curriculum take teacher's beliefs, knowledge into consideration, which form or make impact on those beliefs in creating and organizing new STS curriculum materials, these materials are likely to be applied based on their proposed plan (Mansour, 2010).

2.8. Pertinent Literature about Transdisciplinary Approach

In this part, international and national studies regarding the transdisciplinary approach in education are presented.

2.8.1. International Studies about Transdisciplinary Approach

A case study was conducted in the New Zealand regarding examination of the International Baccalaureate Primary Years Program and the transdisciplinary approach. It is found that it supports children about researching, and enhances classroom inquiry. Researchers made a document analysis, classroom observations, two workshops with principals and coordinators and an analysis of achievement data for the case study. Results of this study shows that schools of the Primary Years Program are more successful than other schools. In fact, Primary Years Program can enhance positive academic learning among children in New Zealand. Also, results show that it supports inquiry-based learning (Kushner et al., 2016).

In addition to this, a study was conducted in order to investigate the impact of the International Baccalaureate Primary Years Program on the development of different attributes of the children. Data was collected in Mexico, Russia, China, the United Kingdom, and Kenya for this research. The researchers found that the Primary Years Program is a valuable and important developing positive attribute for children. Also,

it was found that children, parents and teachers support the exhibition as an activity. Most of the parents thought that the exhibition provides a relationship with the children and program. Children make their exhibition independently and critically. Exhibition of the Primary Years Program improves inquiry and critical thinking (Medwell et al., 2017). Moreover, another study was conducted about Middle Years Program and transdisciplinary approach in Spain, and was found that the program provides many benefits such as critical thinking and inquiry skills. A mixed-methods research design was used for this study. Questionnaires, interview and focus groups were used in order to collect data. Eight school participated in this research study. School administrators, teachers, children and parents shared their perceived benefits of the program such as critical thinking. Results of this study shows that it supports critical thinking skills for children (Valle et al., 2017).

Furthermore, research study was conducted in order to examine how Primary Years Program teachers, coordinators and administrators implement transdisciplinary approaches to learning and teaching. The findings show that children who experience an integrated curriculum based on the transdisciplinary approach are more successful academically than their other children. Also, children improve their skills and values about the world (Drake et al., 2015).

In addition to this, research study was conducted in the United States in order to investigate implementation of the International Baccalaureate Program in two school districts in the United States, mainly focusing on outcomes of the program. Findings shows that these program's students are better on cultural awareness, study habits and college readiness, compared to students who did not participate (Beckwitt et al., 2015).

Another study was conducted in order to explore effects of participation in International Baccalaureate program on students in terms of the long-term outcomes. The findings of the research study show that the experience of the program can be important effect on the academic outcomes and career roads. Also, it supports children about an internationally minded world perspective. Children have positive view regarding the lifelong learning (Wright, 2015).

Moreover, a research study was conducted in England in order to investigate how teachers use technology to support learning in mathematics and science in the International Baccalaureate Program which based on the transdisciplinary approach. Findings of the research study demonstrates that using technology encourages inquiry-based learning for children (Cooker et al., 2015). In addition to this, research study was conducted in order to investigate the experiences of Primary Years Program teachers about their professional development. Teachers stated that practices change in time, and Primary Years Program which used transdisciplinary approach is difficult. Also, teachers stated that time and sufficient support is needed for the professional development in order to be confident in the process of the implementing the program (Cook, 2015). In addition to this, research study investigates students as 'global citizens' in the school which was implemented Primary Years Program and transdisciplinary approach. Findings shows that students have appreciation for other cultures. The research study shows that respect for, and awareness of, other cultures is important for developing a global view (Besnoy et al., 2015). In addition to this, Rossi (2015) conducted a study in Germany, and investigated the experiences of International Primary Years Program students in order to comprehend which social values are passed through education of the history. The findings of this research study show that students have independence in interpreting of history. Also, a study was conducted in Latin American countries, and investigated the education of young children with autism spectrum disorder within the framework of the transdisciplinary approach, which is used in the International Baccalaureate Primary Years Program. Interviews with teachers and classroom observation was used for this study. A mixed method was used. The researchers found that this program may improve the education of young children with autism because there are different teaching styles and methods which applied within the framework of the Primary Years Program. Also, the most of the teachers had positive attitudes about educating children with autism spectrum disorder within the framework Primary Years Program (Bush, 2017).

2.8.2. National Studies about Transdisciplinary Approach

There are limited studies regarding the transdisciplinary approach in Turkey. A research study was conducted in Turkey, and study compares the International Baccalaureate Diploma Program and the Ministry of National Education Program (MoNEP) in Turkey. It also investigates the impact of each program on graduates' university success of children. Diploma Program was more cognitively better than the MoNEP. Results shows that diploma program students graduated at a higher ratio than students of MoNEP (Ateşkan et al., 2015).

In addition to this, case study was conducted in Ankara in order to investigate International Primary Years Program teacher's perspectives about transdisciplinary approach. Findings of this study shows that teachers have positive view regarding the transdisciplinary approach. They stated that it has positive effects on students and parents (Özer, 2008). Also, another study compares fourth grade International Baccalaureate Primary Years Program students and Ministry of National Education (MoNE) students regarding the misconceptions of fractions in Turkey. Findings shows that Primary Years students had less misconceptions and more correct answers compared to their peers of MoNE (Sengul, 2015). Furthermore, another study compares the content objectives, teaching-learning process, and assessment dimensions of the International Baccalaureate Diploma Program (DP) Language A1 program and the Turkish national curriculum. Findings shows that the DP Language A1 course had an important effect on the development of students' critical thinking skills than students of the Turkish literature program (Aktasa & Guvenb, 2015).

2.9. Summary of Literature Review

This chapter concentrated on five main topics, including definition of integration, defining the integrated curriculum, approaches to integration of disciplines, the transdisciplinary approach and education, teacher's perspectives toward the integration and international and national studies about transdisciplinary approach.

Transdisciplinary approach provides active learning based on important issues and benefited from several and different disciplines (Harrirs & Marsh, 2007). Transdisciplinary approach focuses on a relevant concept or problem that merges the perspectives of various disciplines in order to make connection with new knowledge and provide deeper understanding to real life problems and experiences (Wilson, 2018). This approach is started with a problem or an issue and a natural connection comes to realize (Benjamin, 1989; Grady, 1994; Meeth, 1978). Transdisciplinary approach tries to arrange curriculum around children's questions and interests. According to Beane (1997), transdisciplinary approach in education is a method which offers a holistic style of teaching and learning and real-life issues. Literature recommended that transdisciplinary approach and education made contribution and support to children' learning, academic success and motivation (Gough et al 2014). Although there are many benefits of transdisciplinary approach for education, there are limited research studies regarding transdisciplinary approach in early childhood education in Turkey. Depending on this literature, purpose of this research study is to investigate early childhood educator' perspectives on the transdisciplinary approach in early childhood education.

CHAPTER 3

METHOD

This chapter provides a comprehensive explanation of the qualitative methods used to examine the perspectives of early childhood educators about transdisciplinary approach in early childhood education. In order to provide base for this research study, the method part of this research study contains some main areas such as purpose of the study, research questions, research design, participants, data collection procedures, data analyzes procedures, ethical procedures, assumptions, trustworthiness of the study.

3.1. Purpose of the Study

The purpose of this study was to investigate the perspectives of early childhood educators about transdisciplinary approach in early childhood education.

3.2. Research Questions

Research questions were developed in order to investigate the perspectives of early childhood educators about transdisciplinary approach in early childhood education. The research questions set this study are as follows:

Research Question 1: What are the perspectives of early childhood educators on the integration of disciplines?

1. a. What are the benefits of integration of disciplines in early childhood education?
1. b. What are the difficulties of integration of disciplines in early childhood education?

Research Question 2: What are the perspectives of early childhood educators regarding the transdisciplinary approach in early childhood education?

2. a. What can be the effects of the implementation of transdisciplinary approach in early childhood education?
2. b. What are early childhood educators' perspectives of characteristic features of the transdisciplinary approach?
2. c. What are the possible difficulties of implementing transdisciplinary approach in early childhood education?

3.3. Research Design

The research design comprises of the whole process of the research study from creating research questions, to analyzing and decoding the data. Creswell (2003) recommends that planning a comprehensive framework for whole research study in order to direct inquiry and better give information to researchers is vital in this study, the researcher implemented qualitative data analysis method to find early childhood educators' perspectives about transdisciplinary approach in early childhood education. The purpose of the current study is to investigate the perspectives of early childhood educators about transdisciplinary approach in early childhood education. The research methods applied for the current study are exhibit of its purpose. Most importantly, the intention of the study is to hold a view about transdisciplinary approach in early childhood education. To examine this topic, the qualitative research design was chosen since qualitative research involve an interpretive, naturalistic approach to the topic. This means that researchers have opportunity to examine things in their natural settings, trying to interpret phenomena in terms of the meaning's participants give to them (Denzin & Lincoln, 1994). In addition to this, qualitative research depends on the views of participants in the study (Smith, 2015).

According to Creswell (2007), when the variables in the study are not known by researchers, it is more effective to use qualitative research design because quantitative research design assist to discover the relationships among variables. In

the qualitative method, the researcher purpose to find variables which are inside the circumstance through in-depth investigation of participants' understanding (Cheek et al., 2004). In other words, qualitative research provide opportunity for participants to give voice in the study (Gibson et al., 2004).

Through this study, gathering comprehensive information about early childhood educators' perspectives about transdisciplinary approach is aimed. In order to achieve this purpose, case study method research design was chosen because case study is better for describing and broadening the understanding of a situation and are often used to study people and programs especially in education (Stake, 1995). Case study involves comprehensive research strategy, methodology or strategy of inquiry (Denzin & Lincoln, 2005; Merriam, 2002; Yin, 2003).

For this study; interview was chosen as a data collection method. Interviews are specifically beneficial for getting the idea of the participant's experiences. The researcher has opportunity to obtain indepth information about the topic of the research (McNamara, 1999). Hence, the participants of this study were asked a total of six open-ended questions. They were provided as much or as little time as required to answer the interview questions. The methods used were instinctively coincided and consistent with the purpose of the study. Confidentiality and asking open-ended questions permitted the participant educators to be free once answering the interview questions. Their answers consisted the only data examined and analyzed for the purpose of this study. The data of early childhood educators' interview transcripts were examined and analyzed using common thematic analysis in order to discover commonalities among answers. Once the study was finished, answers of the participants were anonymous.

3.4. Participants

“Qualitative inquiry seeks to understand the meaning of a phenomenon from the perspectives of the participants, so it is important to select a sample from which the most can be learned” (Merriam, 2002, p. 12). The participants of this study involve twenty in-service early childhood educators who have been working in state early

childhood institution. They have teaching experience between 4 to 24 years. For this study, four early childhood institutions participated in this study. All of the institutions are public kindergartens. MoNE program was applied in these institutions. Size of sample was constant and fixed because of availability of time and resources. The researcher primarily ought to limit the sample. Sample size is connected with the process of the research study (Klassen et al., 2012). Hence, size of sample was developed based on the nature and process of the study. All of participants were female.

The participants of this study are recognized by validating that they are a good match for the purpose of the study (Klassen et al., 2012). The data collected from the study were solely early childhood educators' answers to interview questions asked by the researcher. These responses were later categorized and arranged under themes that arose from the participant early childhood educators' answers.

Qualitative research examines the experiences of the participants included. It is generally known for a qualitative research study to investigate the experiences of people who match a certain criterion (Smith, 2015). Therefore, this qualitative research study has applied a convenience sampling method to select participant early childhood educators. Convenience sampling method was used for this study. Convenience sampling is a kind of nonrandom sampling method, and it is preferred because of easy accessibility, geographical proximity, availability at a given time, or the willingness to participate are involved for the aim of the study (Dörnyei, 2007). In other words, the researching subjects of the population that are easily accessible to the researcher (Saumure & Given, 2008). Convenience sampling plainly consists of participants who are eager to share and match a fixed criterion for the research study (Emerson, 2015). The demographic data of the participants were demonstrated with Table 5.

Table 5
Demographic Data of the Research Study Participants

Participant	Gender	Working years as an educator
P1	Female	16
P2	Female	5
P3	Female	6
P4	Female	10
P5	Female	17
P6	Female	10
P7	Female	4
P8	Female	8
P9	Female	12
P10	Female	10
P11	Female	10
P12	Female	17
P13	Female	16
P14	Female	11
P15	Female	15
P16	Female	24
P17	Female	18
P18	Female	7
P19	Female	9
P20	Female	10

3.5. Data Collection Procedure

There are a number of data collection procedures in qualitative research, such as individual interviews, focus group interviews, observations or visual or textual document analysis (Bogdan & Biklen, 2007; Silverman, 2000). Interviews can be conducted in order to investigate the views, perspectives and beliefs of interviewees. For the aim of this study, the early childhood educators' interviews were the only sources of data. Data collection was completed during the 2018-2019 spring semester.

3.5.1. Interview Protocol and Procedure

The interview was developed by the researcher. The semi-structured interview requirements were considered once developing the interview protocol. According to Bogdan & Biklen (2006), there are some criteria once developing the interview protocol. These are; writing clear interview questions, creating the interview questions which have principal focal points, avoiding complex and multidimensional interview questions, writing diverse types of interview questions,

organize the interview questions in logical way, creating the interview questions. The researcher followed these criteria as a researcher. Also, Bogdan and Biklen (2006) suggest that using open-ended interview questions is crucial instead of using close-ended interview questions. Therefore, the researcher developed open ended and semi-structured interview questions as a researcher. Six open-ended and semi-structured interview questions were developed in order to investigate the research topic from a comprehensive point of view about the participant early childhood educator's ideas, perceptions, knowledge, view and beliefs about the research topic. The interview questions were associated with transdisciplinary approach and integration of disciplines in early childhood education. The questions fundamentally involve not only the transdisciplinary approach, but also the participant educators' backgrounds, views, thoughts about integration of disciplines. These interviews involve questions about integration of disciplines, early childhood educators' views about transdisciplinary approach and early childhood educators' experience. Interviewing is a useful technique to recognize individuals' view (Bogdan & Biklen, 2007). Since it is interactive, and provide beneficial data gathering method. Interview questions are open-ended and clear for participants (See Appendix A: Interview Protocols).

Research plan was to gather the data by interviewing state early childhood educators in Bartın. An interview can be described as the action of face to face communication in order to learn an individual's or a group of certain people's views, attitudes, thoughts, attitudes knowledge and behavior about definite subjects (Yıldırım & Şimşek, 2011). The semi-structured interview was used in this research study since the researcher has opportunity to adjust the questions as the circumstances demands despite of that the structure generally is the similar for whole participants, (Lichtman, 2006). The semi-structured interview is created and implemented by the researcher.

Before interviewing with the early childhood educators, the researcher briefly introduced the topic and myself. Interviews took 20-60 minutes. The interviews were generally carried out at the kindergarten the early childhood educators worked at. Initially, the researcher asked the participant educators to share their background

information. The researcher kept going the interview by discussing the participant educators' own perspective and thoughts depending upon their experiences about integration of disciplines and transdisciplinary approach in early childhood education. As much information as possible was gathered in order to comprehend the participant educators' perspectives as the teacher of the kindergarten they are currently working at. Turner (2010) suggests that the researcher does not trust memory to remember participants' answers. Therefore, all of interviews were audio-recorded by a recorder.

Before having an interview with early childhood educators, the three experts' opinions and evaluation about the interview protocol were considered. These experts are from the field of early childhood education. The experts examined and evaluated open and semi-structured interview questions protocol. They examined and controlled open ended and semi-structured interview questions protocol to understand whether they comprised the research questions or not.

In order to check the open ended and semi-structured interview questions appropriateness, a pilot study was conducted. The pilot interview was conducted with two participant early childhood educators. Data were recorded on an audio device and then later transcribed into text. The pilot interview was mentioned in detail below.

3.5.2. Pilot Interviews

Interviews in qualitative research study provide plentiful data to attain participants' experiences from their own view. Silverman (2000) highlighted that the aim of the interview is to understand what the participants' views are. In fact, he thought that the researcher cannot recognize the views, thoughts and feelings of people and how they arrange the world which live in. Nevertheless, it is not simple to evaluate participants' subjective views with one to one interview as describing the process of research study. Thus, before collecting the data procedure, qualitative research study requires serious preparation. Oppenheim (1992) suggest that pilot study is necessary in order to make changes in the order of interview questions, explain ambiguous

items or removing questions which are not needed to answer. Thanks to pilot study, the researcher gets ideas about whether the research questions cover the topic of research study or not. In addition to this, the researcher has opportunity to check the clearness and consistency of each interview question.

A pilot study was carried out to guarantee the interview questions are coherent and clear to understand for this study. In addition to this, a pilot study can help researcher to describe proper characteristics of participants. Pilot research study were conducted with 2 early childhood educators. All the participants were located in Bartın. The pilot interview study was conducted to examine whether the questions were clear. The participants were given knowledge about the purpose of the study. The consent forms were given to the participant early childhood educators since it is provided that they were volunteered to be participate in the research study. The interview took approximately 60 minutes. The interviews were conducted at quiet and suitable place and were recorded by voice recorders.

After the researcher finished the interview, the pilot data was listened to by the researcher. Interviews were transcribed word-for-word. Depending on the data of pilot study, research questions arranged again and completed and aim of the study was elucidated. With the help of the pilot study, changing and arranging wording of the questions was easy. In fact, the pilot study enhanced understandability of the interview questions.

As a result of the pilot study, the researcher realized that educators generally do not know anything about transdisciplinary approach, and they could not say anything about it. The researcher decided to give only definition of the transdisciplinary approach. In this way, the participant educators had an idea about this approach. In fact, definition of the transdisciplinary approach was given to the participant educators before asking the interview questions about the transdisciplinary approach.

The result of the pilot study showed that the interview was found to be suitable concerning its content, clearness and consistency. Pilot interviews were beneficial

and helpful for me as a researcher since the researcher sometimes have to adjust and adapt interview questions. The researcher often preferred different words to alter the participant early childhood educators' focus and asked them to make detailed on their answers. The interview questions are shown in Appendix A.

3.6. Data Analysis Procedure

Data analysis in educational studies comprises a systematic search in order to find meaning of results. In other words, it is a technique of processing data in order to make it comprehensible for people (Fraenkel & Wallen, 2006). Analysis comes to mean arranging the data in ways that help researchers to see patterns, determine themes, and explore relations between topics through a detailed interrogation of the data (Hatch, 2002). In the study, data analysis procedure started with the transcription of whole interviews. After the transcription was finished, the written text was read several times.

Common themes in interview questions' answers were noted by a researcher. With the help of the themes, a researcher better understands the the data. Then, the researcher classified and arranged interview questions' answers into the arising themes, categories and codes. Afterwards, the researcher cautiously read over the answers in each grouping and classifications and create categories and codes to demonstrate the answers in this part.

General thematic analysis was used as a data analysis method. According to Clarke and Braun (2013), general thematic analysis is a technique which used to examine, analyze and recognize patterns among data in a qualitative study. There are six major phases of a thematic analysis which were adjusted for the aim of this study. The researcher is acquainted with the data in the first phase. For this phase, the researcher listened the recorded interviews and read the transcript of the interview couple of times. Afterwards, process of the coding is finished for the data gathered. In the second phase, the researcher develops labels for any significant characteristics of the data. Hence, the researcher attached a code to each data item and the researcher finished this phase by arranging all the codes. Later, categories are created for

throughout the data gathered in the third phase. A theme is a significant and meaningful model or pattern in the data which is related with the research questions of research study (Clarke & Braun, 2013). The researcher tried to look for similarities within the data. According to Clarke & Braun, (2013), the researcher builds themes without discovering the themes in the data. After all the coded data is sorted to every theme, whole themes are reexamined in the fourth phase the researcher controlled that whole themes are understandable and coherent in connected with the coded excerpt and whole data-set. Then, the researcher describes and gives a title to the themes by writing a comprehensive examination of every theme fifth phase. The researcher gave a title to the themes. In the end, the researcher finishes writing of the examination and analysis in the sixth phase. In addition to this, the researcher summarizes the analytical data extracts in order to narrate to the reader. Finally, interpretations about this research study made by the researcher.

3.7. Ethical Procedure

It is crucial that researchers admit that they are responsible to conduct their research in an ethical manner. They have to protect the independence and wellbeing of participants in every phase of the research process (Stockley & Balkwill, 2013). In addition, ethical standards described by Creswell (2007) were preferred to use pseudonym instead of the actual names of the participants because of privacy issues, participants' role, the researcher's role and the procedures. Hence, researchers ought to be conscious to ensure the confidentiality and privacy of their participants during the research process. Before collecting the data, permission from Human Subjects Ethics Committee (HSEC) of Middle East Technical University (METU) and the Ministry of National Education (MONE) was obtained in order to conduct research study in Bartın in 2019 (See Appendix B: Human Subjects Ethics Committee Approval). Thus, the researcher reached 20 early childhood educators. Additionally, the identity of the participant early childhood educator who participate in this research study were fully assured. Consent forms were filled out by participants. Audio recordings and transcriptions of interviews were also protected. All documents about this research study were kept on a computer that is password ensured at the researcher's home.

All participants were given information about research study and aim of the research study. Participant early childhood educators signed a consent form accepting their participation in the research study. It was also stated that participant early childhood educators may have an option to withdraw their participation in the research study at any time.

3.8. Assumptions

There are some assumptions which were made for this research study. First assumption is that all of the participants were expected to give answers to the interview questions accurately and honestly. Second assumption is that all of the participants were expected to give answer to the interview questions to the best of their ability concerning their perspectives, thoughts and knowledge about transdisciplinary approach and integration of disciplines in early childhood education.

3.9. Trustworthiness of the Study

There are certain methods in order to make a qualitative study trustworthy by a researcher. According to Merriam (2009), validity and reliability is important for developing concept of the research study and to the way in which data are gathered, analyzed, interpreted and how the research results are exhibited. Thus, validity and reliability were examined for this research study and specific strategies were used in order to increase the study's credibility.

3.9.1. Validity

Creswell and Miller (2000) stated that there are certain methods for the truthfulness of the research. Researchers have opportunity to use these methods in order to provide validity of their research. These methods are prolonged engagement, persistent observation in the research field, triangulation, peer review, clarifying hypotheses and the researcher bias, member checking, rich and thick description, and external audits. Correspondingly, if the researcher uses two of the methods

which mentioned above, the validity of the research study can be ensured adequately. In the current study, the researcher used variety of methods in order to increase validity of this research study. First of all, expert opinion was collected from three experts in order to ensure the internal validity of the interview questions for this research study. In addition to this, a pilot study was also made in order to increase the internal validity of a research study. After gathering an expert opinion and conducting a pilot study, the interview questions were reconstructed and reorganized by the researcher. Also, member checking was used for the validity of this research study. In member checking, the approval of participants is acquired regarding the accuracy of the transcripts of their interviews. In this way, the participants have opportunity to evaluate the accuracy and credibility of the research study (Creswell, 2013; Wallen & Fraenkel, 2013). The written form of the interview was offered and showed to a randomly selected number of participants in order to ensure that the recordings of the interview were accurate. Lastly, peer review was used for the validity of this research study. Peer review comprises of scanning some of the raw data and judging whether the results of research study are reasonable with the data with the help of a colleague familiar with the research study (Wallen & Fraenkel, 2013). In fact, the reviewer was a master candidate from early childhood education for this research study.

3.9.2. Reliability

In qualitative research study, reliability means the consistency of the researcher's attitude with different studies and different researchers (Gibbs, 2007). According to Merriam (2009), reliability is the important thing to which results of research study can be repeated. There are many methods in order to provide the reliability of a research study. Inter-coder agreement was used for this research study. The inter-coder agreement means that it contains the examination of the interview data by multiple coders in order to have stable responses (Silverman, 2000; Creswell, 2007). Therefore, meeting a consensus in themes and coding is important. In order to provide reliability of this research study, transcripts of the interview were read by different researchers in the field. The first coder was the researcher and the second coder was a master candidate in the department of early childhood education. Coders

read and coded transcripts separately. Then, they meet to evaluate and discuss the themes and codes of the research study. In addition, the findings of this research study were provided by rich and detailed quotes in order to improve the description of the codes and themes.

3.10. The Role of the Researcher

The researcher's role is important in qualitative research study because the researcher gathers data and apply analysis (Creswell, 2007). Creswell (2013) recommends some steps for conducting a proper interview. These are; being a kind and well-mannered to the participants, not asking too many questions and not going over the limit about time. The researcher tried to follow these steps during the interview. The data of this study was collected from early childhood educators working at a public kindergartens in Bartın. The researcher's main role is to be an interviewer. During the all interviews, the researcher tried to make to feel better all the participants. The researcher provided the participants to feel comfortable in terms of timing and place. Hence, participants decided the place in their kindergarten and time for the interview. During the interview, the researcher tried to express what she understood from the participants' answers when participants' responses were unclear. If there was contradiction between the researcher and participants' answers, participants tried to correct the researcher's interpretations. The researcher tried to summarize participants' answers shortly before the researcher generally asked the next question. Also, the researcher tried to exclude his personal experiences and be objective to the participants.

3.11. Limitations of the Study

In this research study, there are some limitations which are mainly related with participants. The first limitation is the homogeneity of the participants. In fact, there are no male early childhood educator could be founded by the researcher. The second limitation is that only the perspectives of early childhood educators who worked in public school, were collected. Maybe, early childhood educators who worked in private school, could enhance the findings of this research study. Third

limitation is that definition of the transdisciplinary approach was given to the participants before asking interview questions about transdisciplinary approach. Hence, their perspectives could be affected from this definition.



CHAPTER 4

FINDINGS

4.1. Introduction

This chapter presents the findings of the study. The purpose of this study was to investigate the perspectives of in-service early childhood educators about transdisciplinary approach in early childhood education. In this chapter, the data collected from early childhood educators will be analyzed in line of research questions. The findings of the study are based on the qualitative data obtained from interview with the early childhood educators and these results are coded. In order to create meaningful patterns in data, codes were created from transcriptions without affecting the meaning of the actual responses. These codes will be also used in the presentation of the data. At the beginning of this section, the demographic information is offered. Thereafter, the findings are introduced in relation to the research questions in the order of asking. The researcher organized the findings in accordance with the categories seen during the coding of data sets. The categories and codes will be provided in tables. The categories were presented together with the codes separately. The transcripts of the interviews were also used to illustrate connection with the code. Related quotes will be also placed to make the codes clearer.

4.2. Demographic Information of the Participants

First of all, pseudonyms were preferred instead of real names of early childhood educators. There were 20 early childhood educators in total, so pseudonyms from P1 to P20 were created. Collected demographic data shows that the educators' working years ranged between 4 and 24 years. All of the educators are female (See Table 6).

Table 6
Demographic Data of the Research Study Participants

Participant	Gender	Working years as an educator
P1	Female	16
P2	Female	5
P3	Female	6
P4	Female	10
P5	Female	17
P6	Female	10
P7	Female	4
P8	Female	8
P9	Female	12
P10	Female	10
P11	Female	10
P12	Female	17
P13	Female	16
P14	Female	11
P15	Female	15
P16	Female	24
P17	Female	18
P18	Female	7
P19	Female	9
P20	Female	10

The findings of the study are provided with every research question.

4.3. Research Question 1: What Are the Perspectives of Early Childhood Educators on the Integration of Disciplines?

Firstly, the demographic data were collected from the participants. Then, a question “*what do you think about integration of disciplines in early childhood education?*” was asked by the researchers. The researcher asked participants to reveal their general perspectives about integration of the disciplines.

4.3.1. RQ 1a: What Are the Benefits of Integration of Disciplines in Early Childhood Education?

The findings under this sub research question were demonstrated in accordance with the categories determined during the coding process. The codes were arranged under three main categories which were positive, negative and neutral perspectives (See Table 7).

Table 7

Participants' Perspectives on Benefits of the Integration of Disciplines

Categories	Subcategories	Codes
Positive perspective	Learning	Effective and permanent learning (n=6) Learning entertainingly (n=2) Children's interests and attention (n=2)
	Development	Supporting children's developmental domains (n=2) Improving skills of children (n=2)
	Integrity	Continuity between activities (n=3)
Negative perspective		Taking a lot of time (n=2)
Neutral perspective	Uninformed	No idea (n=1)

4.3.1.1. Category 1- Positive Perspective

Early childhood educators shared their opinions about integration of disciplines in early childhood education. Seventeen of the participants had positive perspectives about integration of disciplines. They focused on various advantages of integration of disciplines. This category is divided three subcategories.

4.3.1.1.1. Subcategory 1- Learning

Early childhood educators had positive perspective about integration of disciplines because they thought that integration of disciplines affect learning positively (n=9). They shared their thoughts about how integration of disciplines make impact on children's learning. This subcategory comprises three codes such as effective and permanent learning, learning entertainingly and children's interests and attention.

4.3.1.1.1.1. Effective and Permanent Learning

Fourteen of the early childhood educators stated that integration of disciplines support children's comprehensive and permanent learning. Integration allows children to pursue learning in a holistic way, without the restrictions often imposed by subject boundaries. P4 stated her opinion in relation to the topic as follows:

I believe that thanks to the integration of different disciplines, goals of education are achieved more quickly. In other words, when I integrate several disciplines in integrated activity lesson plan, I realized that children learn better, and their learning is more permanent. Also, it is easy to teach concepts or knowledge to the children when I integrate different disciplines.

P17 shared ideas in relation to the question as follows:

As a teacher in the kindergarten, we need to know that children come to the classroom, and they have a different backgrounds and experiences and skills for learning, so the lesson plans should guarantee all the needs of the children, and we can reach this with the help of the integration of disciplines. For example, there is a child in my classroom, he is interested in science. At the same time, another child interested in math. When I prepare math integrated science activity, two kids' interests meet in the middle, and also their learning is more permanent and comprehensive because they can have opportunity to connect a discipline with an another one, and they can have deeper understanding of the content and they learn in comprehensive way.

4.3.1.1.1.2. Learning Entertainingly

Another positive perspective of participants is that children learn entertainingly with the integration of disciplines (n=2). P8 expressed her opinions as follows:

Children are bored of an activity in the classroom, and their learning motivation decreases. When we integrate two different disciplines in activity plan, children are not bored, and they can learn entertainingly.

P12 stated her opinions about the same topic as follows:

I think that when a discipline such as science, math or school readiness is integrated with play, children enjoy this. They learn main disciplines in a fun way. Therefore, play is important tool for children's learning, and play should be integrated with main disciplines in kindergarten.

4.3.1.1.1.3. Children's Interests and Attention:

Another positive perspective of participants is that integration of disciplines support children's interests and attention (n=2). P3 stated her thoughts by saying,

I think that children's interests change from day to day. Teachers should provide learning experiences based on their interests, and provide suitable activities according to their interests. In that way, children can learn adequately. Integration of disciplines can support children's interests, and disciplines can be merged based on children's interests.

P9 expressed her ideas about the topic as follows:

Children's attention is very short in the early years. Therefore, different disciplines can be interconnected in order to attract children's attention because children's attention is important component of their learning. Without children's attention, effective teaching and learning cannot be achieved.

4.3.1.1.2. Subcategory 2- Development

Participants had positive perspective about integration of disciplines because they thought that integration of disciplines affect children's development positively (n=4). They shared their thoughts about how integration of disciplines make impact on children's development. This subcategory comprises two codes.

4.3.1.1.2.1. Supporting Children's Developmental Domains

Another positive perspective of participants is that integration of disciplines support children's developmental domains (n=2). P7 stated opinion by saying:

I think that integration of different disciplines makes an impact on children's developmental areas such as emotional, cognitive, social, language and physical. When disciplines are integrated, children are not thinking "Now I am going to learn something from this integrated activity." Yet integrated activity creates powerful learning opportunities across all areas of development. Children's learning and development are holistic and complex, but skills, attitudes and abilities can be encouraged through the integrated activity, including cognitive, social, motor skills.

P15 shared her opinion on the same topic by saying that:

Some children do not like the math, so their math skills and cognitive abilities can drop, and affect negatively. When we integrate math with play, children have opportunity to learn math when playing. In that way, their cognitive development is affected positively.

4.3.1.1.2.2. Improving Skills of Children

Another positive perspective of participants is that integration of disciplines support children's skills (n=2). P2 stated thought by saying:

I think that when I integrated two different disciplines in an integrated activity, I provide children to improve different skills such as social and cognitive skills.

P10 shared her opinion on the same topic by saying that:

When I prepared and implemented the integrated activity, children have opportunity to improve their cognitive skills such as creative thinking skills and reasoning skills. Cognitive skills teach children how to deal with problems and how to find more and different possible solutions to the problems. When disciplines are integrated, children improve these cognitive skills, and make connection their problem with different solution.

4.3.1.1.3. Subcategory 3 – Integrity

Participants had positive perspective about integration of disciplines since they thought that integration of disciplines provide integrity in the curriculum (n=3). They shared their thoughts about how integration of disciplines make impact on integrity of the curriculum. This subcategory comprises a code such as continuity between activities.

4.3.1.1.3.1. Continuity Between Activities

Another positive perspective of participants is that integration of disciplines provide continuity between activities (n=3). P1 stated opinion by saying:

Integration of different disciplines facilitate a continuity between activities. In other words, I think that transition between activities should be smooth because children do not know what activity comes. Integration of disciplines provide a continuity between activities more smoothly.

P7 shared her opinion on the same issue by saying that:

When I implemented an integrated activity plan, I realized that continuity between lessons is easier for me since integration provide two different disciplines to meet in the middle, and maybe similar topic makes continuity easy.

4.3.1.2. Category 2 – Negative Perspective

Early childhood educators shared their perspective about integration of disciplines. Some of the participants had negative perspective about integration of disciplines.

4.3.1.2.1. Subcategory 1 – Unfavorable Circumstance

Participants had negative perspective about integration of disciplines because they thought that integration of disciplines take a lot of time (n=2). They shared their thoughts about the issue. This subcategory comprises a code such as taking a lot of time.

4.3.1.2.1.1. Taking a Lot of Time

A few of the participants (n=2) thought that integration of disciplines takes a lot of time. P5 expressed her idea by saying that:

I think that integration of disciplines is not effective for implementation because it takes a lot of time, but time is not infinite. We should do many things in the preschool classroom in teaching time, so I believe that integration of disciplines is time eater, and we need extra time to implement integration of different disciplines in my opinion.

P14 shared her idea on the topic by saying that:

When I implemented an integrated activity plan, time was not enough for me because I am only teacher in the classroom, and I have to reach every child in my classroom, so integrated activity restricts me to reach child in my classroom. I need a time and teaching assistant when I implement an integration of disciplines.

4.3.1.3. Category 3 – Neutral Perspective

Few of the early childhood educators did not have any positive or negative perspective about integration of disciplines (n=1).

4.3.1.3.1. Subcategory 1 – Uninformed

Some of participants have no knowledge of integration of disciplines (n=1).

4.3.1.3.1.1. No Idea

A participant (n=1) replied that she did not have any knowledge about integration of disciplines, so she could not comment and share any idea on the topic. P18 said:

I do not have any idea about integration of disciplines. Due to insufficient knowledge about this issue, I do not know.

4.3.2. RQ 1b: What Are the Difficulties of Integration of Disciplines in Early Childhood Education?

The findings under this sub research question were demonstrated in accordance with the categories determined during the coding process. The codes were arranged under two main categories which were deficiency and classroom environment (See Table 8).

Table 8
Perspectives on the Difficulties of the Integration in ECE

Categories	Codes
Deficiency	Lack of materials (n=5) Lack of places (n=4) Lack of time (n=2)
Classroom environment	Single teacher (n=6) Individual differences (n=4)

4.3.2.1. Category 1 – Deficiency

Early childhood educators shared their opinions about difficulties of integration. Participants reported that lack of materials, place and time make difficulties of integration process (n=11). They shared their opinions about the issue.

4.3.2.1.1. Lack of Materials

Five of the early childhood educators shared their opinions about the issue and emphasized that lack of materials has negative effects on the integration of disciplines. P11 expressed her thoughts by saying:

I think that integration of different disciplines is beneficial for children's learning, but variety of materials are needed for integration. For instance, I prepared art integrated science activity for teaching. My topic was earth and space, and I wanted to teach how the world is and space looks. However, there was no any computer or internet access in my classroom. This lack of materials has negative effect on my implementation of integrated activity plan, and also this lowers my motivation.

P15 shared thoughts on the topic by saying that:

Different children who are from diverse backgrounds, come in my classroom. As a teacher, I meet all different needs of children, so I need different kinds of materials in order to address all of children because some children learn with visual materials easily or some children learn with audible materials or some children learn with doing. Thus, teachers should use different kinds of materials for children's learning. Actually, integration of different disciplines needs different materials in order to take place learning effectively. Without variety of materials, integration of different disciplines can be difficult for teacher.

4.3.2.1.2. Lack of Place

Four of the participants clarified that it is difficult to implement integrated activity without enough place because different kinds of disciplines can need different kinds of places. They added that if kindergarten has different kinds of places, implementation of the integrated activity can be easy for teachers. P3 explained her opinion by saying:

When I prepared an integrated activity, sometimes I need a different place such as playroom, music room and playground since size of my classroom is very small, and sometimes implementation of integrated activity was difficult for me such as math integrated play activity. I created a game for this activity, but I could not implement integrated activity effectively because of insufficient places.

P19 has said about the issue the following:

I want to implement some integrated activity in the garden since children sometimes need a somewhere else, in addition to the classroom, their attention increases when place changes. However, garden in my kindergarten is not useful and big for implementation. Thus, lack of useful garden can be difficult for integrated activity.

4.3.2.1.3. Lack of Time

Two of early childhood educators shared their thoughts regarding the topic and stated that lack of time makes integration of disciplines difficult. P6 expressed her idea by saying:

I believe that integrated curriculum is beneficial for children's learning since it provides children to connect among various disciplines in curriculum. However, time is not enough for me while implementing the integrated curriculum. The day is already very cramped in early childhood program, so time is not enough for implementation.

P12 shared thoughts on the topic by saying that:

I have no available time to plan and prepare the effective integrated activity despite of that there are several benefits of integration in curriculum. Thus, time constraint is main difficulty while preparing the integrated activity. I know that sometimes teachers try to plan integration of different disciplines, but often they cannot be successful because of time constraint in my opinion.

4.3.2.2. Category 2 – Classroom Environment

According to participants, classroom environment (single teacher, individual differences) can be difficult for integration of disciplines (n=10). Participants shared their ideas about difficulties of integration in this category.

4.3.2.2.1. Single Teacher

According to six of the participants, one teacher in the classroom can affect implementation of integrated activity negatively, and teachers sometimes need assistant teacher during the implementation process. P14 said that:

I think that two teachers are needed in the kindergarten classroom in order to occur effective integrated experience and learning for children because single teacher cannot catch everything in the classroom, and integration of different disciplines require time to plan and collaboration with another teacher. Hence, if there are two teachers in the kindergarten classroom, planning and implementation of integrated activity can be easy.

P16 has said the following:

The children in my classroom are too young, and sometimes I get into trouble of implementation, and I want to implement an integrated activity, but sometimes this can be very tiring, and I feel strained. Thus, especially teachers who have young children in their classroom, need an assistant. They have a better learning process with an assistant. I feel very comfortable when an assistant teacher is provided by Ministry of National Education, and I can implement an integrated activity easily.

4.3.2.2.2. Individual Differences

Four of the educators placed significant emphasis on individual differences. P9 shared her ideas by saying:

Children came from different prior knowledge in my classroom. When I implement the integrated activity, some children are unmotivated for participating activity because they know what happen. They went to a kindergarten at a young age, so they know what happen. Children with different prior knowledge complicate the integrated activity.

P20 shared her thought on the same topic by mentioning her classroom experiences:

There is a child who has a learning disability in my classroom. When I try to teach something with the integrated activity, a child who has a learning disability, are trouble in understanding and participating the activity. Hence, children with different learning characteristic makes integrated activity difficult.

4.4. Research Question 2: What Are the Perspectives of Early Childhood Educators Regarding Transdisciplinary Approach in Early Childhood Education?

First, the researcher asked some questions such as *Have you ever heard about the transdisciplinary approach? What is the transdisciplinary approach?* These questions were asked before the researcher gave the definition of transdisciplinary approach to the participants. A definition of this approach was given to the participants because most of the participants never heard and met transdisciplinary approach before. Definition of transdisciplinary approach was:

An approach to curriculum integration which dissolves the boundaries between the conventional disciplines and organizes teaching and learning around the construction of meaning in the context of real-world problems or themes. (UNESCO, 2013, n.d.).

After this definition, a question “*what do you think about the transdisciplinary approach after hearing the definition of the term?*” was asked to the participants. The answers of the participants were arranged below the label of positive, negative and neutral perspective before the definition (See Table 9).

Table 9
Perspectives of Participants Before Definition

Categories	Codes
Positive Perspectives	Combining the subjects (n=1)
Neutral Perspectives	No idea (n=18)
Irrelevant Perspectives	Strict discipline technique (n=1)

4.4.1. Category 1 – Positive Perspectives Before Definition

Early childhood educators shared their basic perspective before hearing the definition of transdisciplinary approach. Actually, one participant of this study had positive perspective about transdisciplinary approach. She focused on one side of transdisciplinary approach such as combining the subjects.

4.4.1.1. Combining the Subject

Only one participant estimated that transdisciplinary approach may be related with combination of the subjects. P9 expressed her thoughts by asserting:

I do not know very well this approach, but I remembered speech of minister of national education on the TV, he mentioned this approach in his talking, and I wondered what transdisciplinary education means, and I researched on the Internet. However, I remembered only thing- this education combines diverse subjects in the school curriculum.

4.4.2. Category 2 – Neutral Perspectives Before Definition

Most of the early childhood educators did not have any perspective about transdisciplinary approach before the definition.

4.4.2.1. No Idea

Participants (n=17) expressed that they have no knowledge about the transdisciplinary approach and they could not comment about this approach. P14 shared her opinion by saying:

I have never heard about transdisciplinary approach. My knowledge is limited about this topic, so nothing comes to mind.

4.4.3. Category 3 – Irrelevant Perspectives Before Definition

Some of early childhood educators expressed their perspectives before they heard the definition of transdisciplinary approach. However, their perspectives are irrelevant with the transdisciplinary approach. P4 expressed her thought by saying:

It can be a strict discipline technique because discipline in kindergarten is very important for children and teachers. As a teacher, we cannot educate without discipline. Maybe, transdisciplinary approach can be new discipline technique in school.

Afterwards, the researcher gave the definition of transdisciplinary approach. The definition which was given to the participants, helped the participants to think about the on the approach to the participant early childhood educators and asked their perspectives. The perspectives of the participant early childhood educators were organized below the label of positive and negative perspectives after the definition (See Table 10).

Table 10
Perspectives of Participants After Definition

Categories	Subcategories	Codes
Positive Perspectives	Unification	Learning a topic in many aspects (n=6) Integrating all disciplines (n=3)
	Daily-life	The compatibility of disciplines with daily life (n=4) Using daily life knowledge (n=2)
	Activity	Implementation of the activity involving different disciplines (n=5)
Negative Perspectives		Difficult to understand and implement (n=1) Lack of teaching resources (n=1)

4.4.4. Category 1 – Positive Perspectives After Definition

Most of the participant early childhood educators shared positive perspectives regarding the transdisciplinary approach after the definition.

4.4.4.1. Subcategory 1 – Unification

Some of the early childhood educators (n=7) explained that transdisciplinary approach tries to merge different topics and disciplines.

4.4.4.1.1. Learning a Topic in Many Aspects

Four of the early childhood educators thought that transdisciplinary approach helps to learn a topic in many ways. P2 expressed opinion by saying that:

When I heard the definition of this approach, I thought that I can teach a concept or topic from the real world in many ways. For instance, color is a topic, and I can teach this topic to my children with the Science and Art lessons. I combine these subjects, and create an activity for children, and they learn the color.

P10 shared her thought by saying that:

This approach resembles the thematic approach in many aspects. Like thematic learning, transdisciplinary approach shapes a curriculum in order to teach a topic in many aspects. It sounds good because I believe that children learn easily when integrating different fields with same topic, and they make connections among different disciplines.

4.4.4.1.2. Integrating All Disciplines

Some of the early childhood educators thought transdisciplinary approach helps to integrate all disciplines (n=3). P7 expressed her thought by saying that:

I thought that this approach tries to bring together the disciplines under the same topic. Projects comes my mind. Actually, when I create a project with my children such as recycling project and aquarium project, I integrated different disciplines in a project, and I could use this approach without my knowledge.

An early childhood teacher (P5) said that:

I was not familiar with the approach specifically. I understood that the transdisciplinary approach involves the integration of curriculum goals, establishing bridges and connections between different disciplines. It can be good for children's learning.

4.4.4.2. Subcategory 2 – Daily-Life

Some of the early childhood educators (n=6) thought that transdisciplinary approach can provide learning experiences in order to develop daily life skills and knowledge for children.

4.4.4.2.1. The Compatibility of Disciplines With Daily-Life

Four of the participants thought that transdisciplinary approach is one in which children broadly discover knowledge in various disciplines related to certain aspects of daily life. P1 shared her opinion by stating that:

When I heard the definition of the transdisciplinary approach, I comprehended that it is related with real world. In other words, real world means daily life for me. This new approach maybe make contribution to the early childhood education in term of teaching daily life to children.

P8 has said the following:

Children can learn real world in this approach. Actually, the real world comprises daily habits, and it can be beneficial because it provides a practical means for children to build a relationship between subjects and their daily life which they live.

4.4.4.2.2. Using Daily-Life Knowledge

Two of the participants stated that transdisciplinary approach might help children to use daily-life knowledge in the classroom, and it provides children to build relationship between disciplines and their daily life. P9 expressed her thought by stating that:

I think that children may have opportunity to use their daily life knowledge with the help of this approach because it supports the linking of disciplines with daily life. As a teacher, we should teach daily life knowledge and skills to children, so it can be useful for early childhood education.

P17 shared her thoughts regarding the topic by focusing on teaching:

Things which we teach, should be related with daily life. Teacher should give opportunity children to use their daily-life knowledge in the school. The transdisciplinary approach can encourage children to use daily-life knowledge in the learning process.

4.4.4.3. Subcategory 3 – Activity

Some of the early childhood educators (n=6) thought that transdisciplinary approach may affect classroom activities positively.

4.4.4.3.1. Implementation of the Activity Involving Different Disciplines

Three of the participants thought that the transdisciplinary approach can make a contribution to the process of the implementation of the activity involving different disciplines. P11 shared her thought by expressing that:

When I heard the definition of the transdisciplinary approach, integrated curriculum comes to my mind because they are very similar things in my opinion. I think that integrated curriculum is very valuable and effective for children's learning, and I implemented in the kindergarten, so transdisciplinary approach can be effective for children's learning since it involves implementation of different disciplines under the same roof.

P14 expressed her ideas about topic by saying that:

I think that transdisciplinary approach supports the curriculum integration, and it may provide incorporating the different disciplines in an activity. Implementation of this approach can be useful for teaching.

4.4.5. Category 2 – Negative Perspectives After Definition

Some of the early childhood educators had negative perspectives and shared their thoughts about transdisciplinary approach (n=2).

4.4.5.1. Difficult to Understand and Implement

One of the participants had negative view about transdisciplinary approach since she thought that it can be difficult to understand and implement. P16 continued that:

I think that removing boundaries between disciplines is not easy thing, and it takes long process. It is difficult to understand and implement in kindergarten when I want to use this approach.

4.4.5.2. Lack of the Teaching Resources

One of the participants had negative views about transdisciplinary approach because of the lack of the teaching resources. P19 shared her thoughts regarding the topic by focusing on teaching resources:

I think that there are no resources for implementation of the transdisciplinary approach. Sometimes, I have to bring materials from home in order to make different activities.

4.4.6. RQ 2a: What Can Be the Effects of the Implementing of Transdisciplinary Approach in Early Childhood Education?

The findings under this sub research question were presented in accordance with the categories determined during coding. The codes were organized under three main categories which were learning, educational environment and development (See Table 11).

Table 11
Participants' Perspectives on the Effects of the Transdisciplinary Approach

Categories	Codes
Learning	Permanent learning (n=6) Learning with fun (n=3) Active learning (n=2)
Educational environment	Freedom (n=2) Various activities (n=2)
Development	Supporting children's developmental domains (n=5)

4.4.6.1. Category 1 – Learning

According to early childhood educators in the study (n=9), transdisciplinary approach can affect children's learning positively.

4.4.6.1.1. Permanent Learning

Some of the early childhood educators (n=6) explained that transdisciplinary approach may support permanent learning for children. P6 shared her thoughts by stating that:

I think that when children are involved in transdisciplinary approach, they can have opportunity to see the big picture and make sense of where things are and how they fit together. It's actual world, it's their world, and this approach is relevant with children's real world, so their learning in kindergarten classroom can be permanent since children can make connection between classroom learning and their world which they live.

P8 expressed her ideas by saying that:

I believe that when integration occurs among disciplines, and boundaries are removed, this can affect children's learning because children do not learn the concepts or topics or anything separately. I prefer to integrate disciplines because everything around me is connected with each other.

4.4.6.1.2. Learning With Fun

Some of the early childhood educators (n=3) explained that transdisciplinary approach may be different way to make learning fun for children. P1 expressed her ideas by saying that:

I think that teaching through play is close to my heart because play is a crucial learning. Through play, children learn all the cognitive skills that are needed to succeed. Learning is different for every child because each one learns with in his/her own style. When we integrate the transdisciplinary approach with play, and removing boundaries, we can achieve learning with fun for children. Thus, teachers need to think out-of-the-box to keep learning fun.

P13 expressed her ideas by saying that:

Children live in an interconnected world. When learning occurs in interconnected way, children understand the world very well. This interconnected learning should be fun for children because sometimes separate subjects can be boring for children. Maybe, transdisciplinary approach can give fun for children.

4.4.6.1.3. Active Learning

Two of the participants thought that the transdisciplinary approach can promotes active learning for children. P5 expressed her ideas by saying that:

I think that active learning is important thing for young learners. Thus, removing boundaries among disciplines with the help of the transdisciplinary approach can support active learning for children. Young children participate the activity in the classroom, they think what they do, and their learning occurs actively. Also, I think that it motivates further learning.

P11 has said the following:

Transdisciplinary approach can encourage the growth of active learners because children have opportunity to discover concepts and skills with integrated way. Integration of the disciplines can promote active learning for children.

4.4.6.2. Category 2 – Educational Environment

According to early childhood educators in the study (n=9), transdisciplinary approach can have influence on the educational environment.

4.4.6.2.1. Freedom

Two of the participants thought that the transdisciplinary approach can give freedom for teachers and children. P7 expressed her ideas by saying that:

I think that removing boundaries between disciplines provides freedom for teachers and children because teachers plan what they want based on the children's interests, and children do not feel like they are in the classroom, children feel free. Also, when integration of activities and removing boundaries between disciplines is applied in the classroom, it may provide an opportunity to be free and flexible in transitions in educational environment.

P14 expressed her ideas by saying that:

I believe that transdisciplinary approach gives freedom to teachers. Without boundaries, teacher can prepare the activities based on children's needs and interests.

4.4.6.2.2. Various Activities

Two of the participants thought that the transdisciplinary approach can provide various activities for teachers. P3 expressed her ideas by saying that:

I believe that when this approach is applied in the kindergarten curriculum, activities are varied because we can plan and implement variety of integrated activities. This sounds good because children are bored once we implement similar activities.

P12 expressed her thoughts by saying that:

I think that different approaches bring different activities for children, so I support different techniques, methods and approaches in early childhood education. Transdisciplinary approach can have influence on children's activities.

4.4.6.3. Category 3 – Development

Early childhood educators thought that when transdisciplinary approach is applied in early childhood education, children's development is influenced positively (n=5).

4.4.6.3.1. Supporting Children's Developmental Domains

Five of the participants thought that the transdisciplinary approach can support children's developmental domains. P15 expressed her ideas by saying that:

I think that transdisciplinary approach is like a type of integration. Integration of different disciplines can have effect on children's development because a discipline is integrated with another discipline, children have opportunity to gain and use different skills, and their different developmental domains develop.

P20 expressed her thoughts by saying that:

This approach can make contribution to children's development because when different disciplines are merged, children make connections among disciplines, and their thinking skills and cognitive skills are better. Actually, this integration helps children in developing skills to retrieve faster knowledge by arranging related topics into themes. It supports children understand learning as a whole by investigating how different ideas, topics, problems and skills are all can be connected to improve depth learning.

4.4.7. RQ 2b: What Are the Possible Difficulties of Implementing Transdisciplinary Approach in Early Childhood Education?

The findings under this sub research question were presented in accordance with the categories determined during coding. The codes were organized under two main categories which were implementation and deficiency (See Table 12).

Table 12
Participants' Perspectives on the Difficulties of the Transdisciplinary Approach

Categories	Codes
Implementation	Difficult to implement (n=6) Insufficient knowledge about implementation(n=6)
Deficiency	Inadequate materials (n=3) Inadequate time (n=3)

4.4.7.1. Category 1 – Implementation

Participants thought that there can be some difficulties of implementing the transdisciplinary approach. One of the difficulties is an implementation process of the transdisciplinary approach such as difficult to implement and insufficient knowledge about implementation. Participants shared their thoughts about difficulties of implementation process in this category (n=13).

4.4.7.1.1. Difficult to Implement

Six of the participants thought that transdisciplinary approach can be difficult to implement because of some reasons. P16 said that:

I have confused vision of transdisciplinary approach is, and how it can be applied in the classroom, and I think that different teachers may comprehend it in different style because it is not clear, so it is difficult to implement in the classroom.

P18 said,

I thought that transdisciplinary approach is difficult to implement, and this can be barrier for teachers. Therefore, an education about this approach is needed in order to be successful by teachers. Also, there are many details of this approach, and removing barriers among disciplines is not easy for teachers.

4.4.7.1.2. Insufficient Knowledge About Implementation

According to six of the participants, insufficient knowledge about transdisciplinary approach can affect implementation of integrated activity, and teachers thought that they need an education about this approach. P2 said that:

I think that one of the difficult is teachers' knowledge about transdisciplinary approach because I heard it for the first time, and I do not know this type of integration. In the future, when I want to implement this approach, my knowledge about the transdisciplinary approach is not enough. Thus, I need enough knowledge and instructional practices about the transdisciplinary approach.

P13 said that:

I think that for the effective implementation of a transdisciplinary approach in the classroom, the teachers' knowledge about the approach is very important because they

are the first person which used the transdisciplinary approach in the classroom. Thus, the teachers should know themes, standards, learning outcomes which is used in transdisciplinary approach. If teachers have sufficient knowledge, they feel comfortable while implementing the transdisciplinary approach in the classroom. On the other hand, insufficient knowledge about the transdisciplinary approach makes difficult implementation of it.

4.4.7.2. Category 2 – Deficiency

Some of the participants (n=3) thought that implementing of the transdisciplinary approach require variety of materials and time.

4.4.7.2.1. Inadequate Materials

Participants (n=2) responded that insufficient materials can affect implementation process of the transdisciplinary approach, and this makes it difficult. P11 said:

I think that the availability and quality of materials can be barrier because there are no sufficient materials in my kindergarten, and this affects my teaching method.

4.4.7.2.2. Inadequate Time

Three of the participants thought that transdisciplinary approach requires plenty of time, but they do not have adequate time in the kindergarten. P10 expressed her opinions by saying that:

I think that preparing and implementing a transdisciplinary approach may require additional time because I need with meet with my colleagues in order to discuss, plan the program. Requiring additional time can be barrier of implementation of the transdisciplinary approach.

4.4.8. RQ 2c: What Are Early Childhood Educators' Perspectives of Characteristic Features of the Transdisciplinary Approach?

The findings under this sub research question were presented in accordance with the categories determined during coding. The codes were organized under two main categories which were problem-based learning, inquiry-based learning and effective and meaningful learning (See Table 13).

Table 13

Participants' Perspectives on the Characteristics Features of the Transdisciplinary Approach

Categories	Subcategories	Codes
Problem-based learning	Problem-based learning	Encouraging children to find their own solutions (n=12) Thinking, researching, questioning skills (n=2)
Inquiry-based learning	Learning	Comprehensive and permanent learning (n=3) Learning with fun (n=1) Learning with real life problems (n=1)
	Development	Supporting different development characteristics (n=2) Improving problem-solving skills (n=2)
Effective and meaningful learning	Teaching	Preparing effective activities (n=5) Using different methods and techniques (n=2) Receiving feedbacks (n=2) Learning by doing (n=5)

4.4.8.1. Category 1 – Problem-Based Learning

Early childhood educators shared their opinions about characteristics of the transdisciplinary approach such as problem-based learning (n=14). This category is divided three subcategories.

4.4.8.1.1. Subcategory 1 – Problem-Based Learning

Early childhood educators had positive perspective about problem-based learning because they thought that problem-based learning provides children to learn with engagement in a real problem. They believe that learning takes place within the contexts of issues or problems which are about real-world. They shared their thoughts about problem-based learning. This subcategory comprises three codes such as encouraging children to find their own solution and thinking, researching, questioning skills.

4.4.8.1.1.1. Encouraging Children to Find Their Own Solutions

Twelve of the early childhood educators stated that problem-based learning encourages children to find their own solutions. P14 expressed her thoughts by saying that:

I think that problem-based learning is important for development of children's analytical skills. In fact, problem-based learning encourages children to find their own solutions in their life with the help of using analytical skills. When teachers encourage children to find their own solutions, children's learning capacity is improved. Thus, teachers should not give a direct solution of problem without encouraging children to find their own solutions. In my classroom, there are wooden blocks for children. Children sometimes asked to me about how to build a castle or house. Instead of giving a direct answer, I try to encourage children to find their own solutions.

P20 said:

In problem-based learning, we support children to find their own solution. As a teacher, we should pay attention that solution is possible for children. When we encourage children to find their own solution, possible solution of the problem becomes their own reward.

4.4.8.1.1.2. Thinking, Researching, Questioning Skills

Two of the participants thought that problem-based learning support children's thinking, researching, and questioning skills. P5 expressed her thoughts by saying that:

I think that problem-based learning support children's thinking, researching, and questioning skills. Actually, there is a continuous discourse between children and teacher, and most of the dialogue composes of questions and answers. When we provide problem-based activities as a teacher, children have opportunity to improve thinking, researching, questioning skills.

P15 said:

When I heard about the problem-based learning, being able to think critically about any problem comes my mind. I think that thinking skills is important because children use their thinking skills in order to solve the problem. Critical thinking skills start with being able to be curious about anything for children.

4.4.8.2. Category 2 – Inquiry-Based Learning

Early childhood educators shared their opinions about characteristics of the transdisciplinary approach such as inquiry-based learning (n=10). This category is divided two subcategories such as learning and development.

4.4.8.2.1. Subcategory 1 – Learning

Early childhood educators thought that inquiry-based learning about problem-based learning. This subcategory comprises three codes such as comprehensive and permanent learning, learning with fun and learning with real life problems.

4.4.8.2.1.1. Comprehensive and Permanent Learning

Three of the participants thought that inquiry-based learning support permanent learning. P2 expressed her thoughts by saying that:

I think that inquiry-based learning contains asking a question. Children who ask the questions about the nature or topic, their learning takes place in a natural way, so their learning can be more permanent. Inquiry-based learning encourages children to query, and they can shape their learning in more permanent way.

P7 said:

In Inquiry-based learning, children explore the environment, materials or concepts, and they ask questions about them. As a teacher, we should not tell children what they need to know. Instead of this, we should support children to discover on their own. In this way, children's learning is more permanent and comprehensive. Thus, teacher's role is important for children's inquiry-based learning.

4.4.8.2.1.2. Learning With Fun

One of the participants thought that inquiry-based learning provide fun for children. They learn the concepts enjoyably. P11 expressed her thoughts by saying that:

I think that when children have inquiry-based learning, they have fun because Inquiry-based teaching focuses children's curiosity. When children go after their curiosity, they have fun since they decide what they learn. With the inquiry-based learning, children explore on their own, and this gives fun.

4.4.8.2.1.3. Learning With Real Life Problems

One of the participants thought that children learn with real life problems when inquiry-based learning is applied in the classroom. P1 expressed her ideas by saying that:

I believe that the purpose of education is to prepare children for real life. Teacher can prepare the activities based on real life problems. They can implement these activities in the classroom. In this way, children understand why their learning is useful beyond the classroom. They can make connection the real world with the classroom. With the inquiry-based learning, children learn real world which they live.

4.4.8.2.2. Subcategory 2 – Development

Early childhood educators thought that inquiry-based learning support children's development. This subcategory comprises two codes such as supporting different developmental characteristics and improving problem-solving skills.

4.4.8.2.2.1. Improving Problem-Solving Skills

Three of the participants thought that inquiry-based learning improves children's problem-solving skills. P4 expressed her thoughts by saying that:

I think that inquiry-based learning develops children's problem-solving skills because children discover their environment using these skills. Continuous use of their problem-solving skills supports not only in classroom, but in their daily life.

P6 expressed her thoughts by saying that:

Inquiry-based learning support children's problem-solving skills since children query in this learning. With the process of questioning, children's skills are developed. In my opinion, children who uses inquiry, have better problem-solving skills.

4.4.8.2.2.2. Supporting Different Developmental Characteristics

One of the participants thought that inquiry-based learning supports children's different developmental characteristics. P13 expressed her thoughts by saying that:

I believe that children's different developmental characteristics is improved with the help of the inquiry-based learning. It has impact on the features of the problem-solving, decision making and reasoning. Children who are questioner, improves their cognitive development.

4.4.8.3. Category 3 - Effective and Meaningful Learning

Early childhood educators shared their opinions about characteristics of the transdisciplinary approach such as effective and meaningful learning (n=14). This category is divided three subcategories.

4.4.8.3.1. Subcategory 1 – Teaching

Early childhood educators thought effective and meaningful learning is provided with effective teaching. This subcategory comprises four codes such as preparing activities, learning by doing, using different methods and techniques and receiving feedbacks.

4.4.8.3.1.1. Preparing Effective Activities

Participants (n=5) thought that preparing effective activities enhance effective and meaningful learning for children. P3 said:

I think that we should prepare effective activities in order to provide effective and meaningful learning for children because teaching is the process which we create the experiences that help children acquire knowledge. The most important thing in the teaching is to provide effective and meaningful experiences for children.

P17 expressed her thoughts by saying that:

I believe that when knowledge or concept is meaningful for children, they learn and use it because they are concrete learner. Effective learning occurs when children participate their learning process enthusiastically.

4.4.8.3.1.2. Learning by Doing

Five of the participants that children learn best by doing. P15 said:

I think that children are born eager to learn by doing. However, teachers try to teach concepts theoretically, so children do not learn effectively. In order to effective and meaningful learning, we provide practice for children. In this way, children learn easily, effectively and in a meaningful way. Children do not forget what they learn by doing. Effective and meaningful learning can be provided with the learning by doing for children.

P19 expressed her thoughts by saying that:

When children practice their learning, their learning is more permanent. With the help of the learning by doing, children have concrete experiences. I believe that children can learn everything in concrete way. While learning by doing, children are more engaged in the classroom.

4.4.8.3.1.3. Using Different Methods and Techniques

Two of the participants thought that using different methods and techniques provide effective and meaningful learning for children. P7 said:

I think that teachers should use different methods in order to provide effective and meaningful learning for children. For instance, I try to pay attention children's interests and learning styles. Some children learn better visually or some children learn better by doing. When I used different methods such as cooperative learning, I reach all of children, and I provide effective and meaningful learning for children in my classroom.

P18 expressed her thoughts by saying that:

In order to effective and meaningful learning, I incorporate technology into my teaching. I believe that technology is a great method to actively engage my children. After children participate in a classroom activity, they watch videos about the topic of the activity, and videos helps children visualize the concepts. In this effective and meaningful learning occurs for children. When technology is used, learning is more interactive for children, and they develop their ideas about the topic.

4.4.8.3.1.4. Receiving Feedbacks

Two of the participants thought that receiving feedbacks from children is important for effective and meaningful learning. P10 said:

I think that effective and meaningful learning requires effective feedback from children because I can have opportunity to arrange my teaching methods and activities with the help of these feedbacks. In this way, better learning occurs for children. In fact, feedback can be received immediately following completion of the activity, and it helps future improvement of teaching methods and activities.

P16 expressed her thoughts by saying that:

After I implemented the activity in the classroom, I asked some questions in order to get feedback from my children. I do this in order to provide effective and meaningful learning. I prefer asking questions in circle time because children are more concentrated and prepared. With the answers of children, I evaluate my activity and

teaching process. Therefore, getting feedback from children is important for effective and meaningful learning in the classroom.

4.5. Summary

The purpose of the study was to investigate the perspectives of early childhood educators on the transdisciplinary approach. Chapter 4 demonstrated the findings of the data of the research study. First part was about the demographic information of the participants. Then each research questions' findings were presented. The findings of this research study were organized based on the categories derived from the codes. Each of the categories was presented with codes one by one. Parts of interview transcripts related with code were also offered.

Participants' perspectives on benefits of the integration of disciplines were provided. The codes were arranged under three main categories which were positive, negative and neutral perspectives. These main categories are divided into four subcategories such as learning, development, integrity and uninformed. In fact, these subcategories have codes such as effective and permanent learning, learning entertainingly, children's interests and attention, supporting children's developmental domains, improving skills of children and continuity between activities. Additionally, participant perspectives on the difficulties of the integration in early childhood education were offered. The codes were organized under two main categories such as deficiency and classroom environment. These categories have some codes such as lack of materials, lack of places, lack of time, single teacher and individual differences.

Also, perspectives of participants before definition were mentioned. There are three categories. These are; positive, neutral and irrelevant perspectives. These categories contain some codes such as combining the subject, no idea and strict discipline technique. Then, perspectives of participants after definition were mentioned. The codes were arranged under three main categories which were positive and negative perspectives. These categories are divided into three subcategories such as unification, daily-life and activity. Indeed, these subcategories comprises of codes such as learning a topic in many aspects, integrating all disciplines, the compatibility

of disciplines with daily life, using daily life knowledge, implementation of the activity involving different disciplines, being a difficult to understand and implement and lack of teaching resources.

Furthermore, participant perspectives on the effects of the transdisciplinary approach were provided. The codes were organized under three main categories which were learning, educational environment and development. These categories have some codes such as permanent learning, learning with fun, active learning, freedom, various activities and supporting children's developmental domains. Also, participant perspectives on the difficulties of the transdisciplinary approach were mentioned. There are two categories such as implementation and deficiency. These categories contain codes such as being difficult to implement, being insufficient knowledge about implementation, having inadequate materials and time.

Lastly, participant perspectives on the characteristics features of the transdisciplinary approach were provided. The codes were arranged under three categories such as problem-based learning, inquiry-based learning and effective and meaningful learning. These categories have some codes such as encouraging children to find their own solutions, thinking, researching, questioning skills, comprehensive and permanent learning, learning with fun, learning with real life problems, supporting different developmental characteristics and improving problem-solving skills. The following chapter is about discussion of these findings of this research study.

CHAPTER 5

DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

In this chapter, the researcher mentions discussion, implications and recommendations for this research study. This chapter have three main parts. First part is about discussion of the findings, and then implications is mentioned for this study. Lastly, limitations and recommendations for further studies are mentioned in this chapter.

5.1. Discussion of the Findings

5.1.1. Perspectives of Early Childhood Educators Regarding Benefits of the Integration of Disciplines

The perspectives of early childhood educators on integration of disciplines were discussed. The participants in this research study stated that integration of disciplines might affect the children positively in terms of learning and development. In their perspective, integration of disciplines affects children's learning positively since it provides effective and permanent learning, learning entertainingly and it uses children's interest and attention as a base. A small number of research studies have investigated educator's perspectives, perceptions and practices regarding the curriculum integration (Leung, 2006; Shriner et al., 2010). Currently, most of the studies on integration of disciplines is about benefits of integration on children's learning (Bonds et al., 1993; Lipson et al., 1993). Children connect their learning with its practical implementation in real life, and this supports effective and permanent learning for children. It is found that integration reinforces and enhances children's knowledge and skills in all disciplines. If children's classroom learning is connected with real life, children have opportunity to

implement what they have learned (Bonds et al., 1993). Caine and Caine (1991) stated that learning is better for children when learning is offered in an effective and a meaningful way. With the help of the integration of disciplines, effective and permanent learning occurs. Similar to the literature, the participants in this research study thought that integration of disciplines affect children's learning positively. As a consequence, educators' positive perspectives regarding the integration of disciplines may be explained by children's learning because integration of disciplines provides children to have effective and permanent learning.

Another perspective of participants in this research study was that integration of disciplines support children's development. Integration of disciplines support questioning for children, and it means that it improves children's cognitive development when learners are active in their learning (Brazee & Capelluti, 1995; Mallery, 2000). Also, integration of disciplines helps children to improve their social development. It supports children to comprehend their environment in depth and whole (Berlin, 1994; George, 1996; Mason, 1996). The results obtained from the literature and the results of the research are consistent with each other. Accordingly, children's development is considered important factor because integration of disciplines make contribution to children's development. This finding may be explained by the fact that integration of the different disciplines can be better for children because their development is positively affected by integration of different disciplines.

5.1.2. Perspectives of Early Childhood Educators About Difficulties of Integration of Disciplines

Early childhood educators shared their perspectives about the challenges of integration in early childhood period. These are lack of materials, time and spaces. Participants of this study mentioned that the lack of time made integration difficult. A research was conducted in 2012. It was found that some conditions support the integration and some conditions decrease the integration such as planning time (Wallace et al., 2012). According to MacMath (2011), educators who apply an integrated curriculum need to plan and arrange their timetables and need time for

planning. A difference between the findings of previous research studies and this research study is that early childhood educators who participated in this research study, thought that integration of disciplines is time-consuming work, and extra effort is needed for planning of the implementation.

Another perspective of this study is that lack of materials has negative effect on the process of the integration. When teaching and learning resources is limited or not enough, integration of disciplines can be difficult. The quality of early childhood education in preschool depends on some elements such as educational materials. If preschools provide appropriate early childhood education with sufficient materials, children in these preschools have better development (Demiriz, Karadağ & Ulutaş, 2003). The findings in the literature emphasize the importance of resources, and adequate material for the integration of the disciplines. These results show that educators do not feel good in implementing the integration of disciplines if there are no sufficient materials.

Under the category of classroom environment, participants shared that the classroom environment (single teacher, individual differences) can be difficult for the integration of disciplines. According to some of the participants, a teacher in the classroom may adversely affect the implementation of the integrated activity, and teachers may sometimes need an assistant teacher in the implementation process. There are few available research studies on teaching assistants in kindergarten classrooms. A study was conducted in England, and it demonstrated that the presence of a teaching assistant supports increase effectiveness of the teaching and classroom management in elementary school (Blatchford, Russell, Bassett, Brown, & Martin, 2007). Relevant literature suggests that assistant teachers can have an impact on classroom quality by offering support to the main teacher (Blatchford et al., 2007; Pretti-Frontczak & Grisham-Brown, 2003). Also, another perspective of this category is that individual differences can result in difficulty in the integration. The differences among learners should be considered in the process of preparation for children's learning. These differences comprise learning styles, abilities and skills (Jung & Graf, 2008). Similar with previous studies, early childhood educators thought that teachers may have difficulty in classroom management because of

being a single teacher in the classroom. Also, there can be connection between the number of assistants in the classroom and children with different characteristics because these children are needed another person in the classroom, and it is difficult for a teacher. Therefore, more workforce and teacher may be required in order to support children with different characteristics.

5.1.3. Perspectives of Early Childhood Educators Regarding the Transdisciplinary Approach

The perspectives of early childhood educators on transdisciplinary approach in early childhood education were discussed. Their perspectives were divided into two parts. These are; their perspective about transdisciplinary approach before the definition and their perspective about transdisciplinary approach after the definition was given by the researcher. Before the definition of transdisciplinary approach was given, most of the early childhood educators shared neutral perspectives about transdisciplinary approach. In addition to this, there was a positive and irrelevant perspective about transdisciplinary approach.

Most of the participants have neutral perspective about transdisciplinary approach before the definition which is provided by the researchers. They stated that they do not have any information about the transdisciplinary approach. In fact, most of the early childhood educators had no idea about transdisciplinary approach. On the other hand, one of the positive perspectives were that transdisciplinary approach helps combining subjects. This finding authenticates the International Baccalaureate Program that children makes connections among the disciplines, and explore methods to integrate the different disciplines (International Baccalaureate Program, 2009). This finding may be explained by the limited use of transdisciplinary approach in Turkey, as a consequence and its rare implementation in the public schools.

In addition to positive perspective, there were also irrelevant perspective expressed by one of the early childhood educators before the definition of transdisciplinary approach was provided to them. This irrelevant perspective was that

transdisciplinary approach can be a strict discipline technique. These findings consequently show that word transdisciplinary is similar with the term discipline which means construction of authority in Turkish language that might have resulted in the participant's giving irrelevant answer.

After the definition of transdisciplinary approach was given to the early childhood educators, most of the early childhood educators responded with positive perspectives. However, there were also negative perspectives regarding the transdisciplinary approach. One of the positive perspectives of the early childhood educators after the definition was that it provides learning topic in many aspects. According to Jacobs (1989), the integration of disciplines is associated with other areas of knowledge. Jensen (2006) supports this perspective, and states that the information alone is meaningless, and the brain forms a pattern in a meaningful context. A case study was conducted in Ankara in order to investigate International Primary Years Program teacher's perspectives about transdisciplinary approach. Findings of this study shows that teachers have positive view regarding the transdisciplinary approach. They stated that it has positive effects on students and parents (Özer, 2010). Therefore, transdisciplinary approach is valuable because they create more relevance and context. Based on the findings of the current study, educators evaluate the transdisciplinary approach based on their experiences, and it helps teaching a topic in a variety of disciplines.

One of the most repeated positive perspective of early childhood educators is that transdisciplinary approach provides compatibility of disciplines with daily life. According to Drake (2007), the planning is started with a context of the real life, and disciplines are diffused in the process of the children's learning. Also, Drake (1998) stated that transdisciplinary approach begins with a context of the real and daily life which is meaningful for children. Furthermore, some participants stated that it helps using daily life knowledge. Selection of themes in this approach is important for using daily life knowledge since themes are crucial in this approach, and all subjects are arranged under a theme. Powerful and clear theme provides children deep understanding of the knowledge such as daily life knowledge (Ackerman, 1989). This finding may be explained by the fact that educators can

make a connection between integration of disciplines and real life because they know the importance of the educational program which support the real-life experiences and skills.

Last positive perspective of the participants is that it provides implementation of the activity involving different disciplines. According to Etim (2005), integration support children to make connections among the disciplines. It provides student-centered approach. It focuses on a main theme or topic which is arranged around a problem derived from different disciplines. For example, when an educator chooses a topic of the 'shelter', they use same topic in the science and math. In this way, separation between disciplines decreases, and children have an activity which consists of different disciplines. In this way, children have opportunity to make more connections. The findings set forth that educators prepare an integrated activity plan which contains different disciplines for their classroom, so they saw the transdisciplinary approach that is similar with an integrated activity plan because definition of this approach involves different disciplines without boundaries.

However, there were also participants in this research study who had negative perspectives about transdisciplinary approach after the definition. One of the negative perspectives of the participants is that it is difficult to understand and implement. Most of the teachers have knowledge about curriculum integration with the help of the seminars and courses. Actually, teacher's thought about integration do not suit with the types of curriculum integration. When schools provide integrated curriculum, teachers have opportunity to understand integration and the characteristics of the integrated curriculum, and they are more willing to implement the integration (Applebee et al., 2007). Based on the results of the current study, educators do not have sufficient knowledge about concept of the transdisciplinary approach and implementation process of the transdisciplinary approach in early childhood education, so they thought that the transdisciplinary approach is difficult to implement.

Another negative perspective of the participants is about lack of teaching resources. Similar to previous research findings, it is found that teaching with integrated

programs is difficult because of additional resources and lack of knowledge. A study was conducted with teachers about this topic, and found that extra teaching resources are required during the implementation (Lam & Chan, 2011). Also, lack of the additional resources can affect teachers' understanding of the integration. Teachers are implementers of the any integrated program, and if teaching resources are provided, they are better implementer (Zhang, 2007). As a result, in line with the findings of this research, it may be said that teaching resources and materials might be important part of teaching process. Similar with literature, early childhood educators who are aware of importance of teaching resources and materials for implementation of the transdisciplinary approach.

5.1.4. Perspectives of Early Childhood Educators About the Effects of the Implementation of the Transdisciplinary Approach

The participants in the current research study stated that the transdisciplinary approach could support permanent learning for children. Transdisciplinary approach provides active learning based on important issues and benefited from several and different disciplines, and it supports permanent learning for children (Harris & Marsh, 2007). This finding of the study revealed that educators are open to new concepts or approach which support children's learning positively.

One of the perspectives of the participants is that the transdisciplinary approach might be a different way to make learning fun for children. The brain's pleasure center is well defined as the critical brain region associated with the neurotransmitter dopamine, the basis for initiating and combining habits, reward-seeking behaviors, and dependence (Trezza et al., 2011). It can support brain's pleasure center. This finding of the study revealed that educators saw this approach which is not boring for children because of its nature. Based on their classroom experience, they know the importance of the enjoyable teaching moments for children's learning.

Another perspective of the participants regarding the implementation of the transdisciplinary approach is that it provides active learning. Ellis and Fouts (2001) stated that every child constructs their own knowledge in their learning process of

integrated curriculum. In this way, active learning occurs for a child. This finding may be explained by the fact that if transdisciplinary approach is implemented in educational program, it has remarkable impacts on children's active learning in that. Educators thought that active learning was seen as an important aspect of education because it supports children to improve their critical thinking skills.

One of the perspectives of the participants is that the transdisciplinary approach may have an impact on the educational environment. Educational programs and environment which offered in institutions, are great importance of supporting developmental characteristics of children in early childhood education (Aral et al., 2000). Similarly, in the literature, early childhood educators pointed out the importance of the environment in the early childhood education, and transdisciplinary approach can contribute to the educational environment because this approach is different from other approaches in terms of implementation.

One of the perspectives of the participants is that the transdisciplinary approach can provide freedom for teachers and children. In this approach, the content and the theme are similar, and there is no segmentation between the fields (Drake, 1991; Grady, 1994). This provides freedom for teachers and children. This situation can be explained that there are no boundaries in the transdisciplinary approach, so when they heard the definition of this approach, they maybe come to their mind freedom, and they may feel free about planning of the transdisciplinary approach.

Furthermore, another perspective of the participants is that it offers various activities. Transdisciplinary approach focuses on a relevant concept or problem that merges the perspectives of various disciplines in order to make connection with new knowledge and provide deeper understanding to real life problems and experiences (Wilson, 2018). Combining variety of disciplines makes various activities for children. One of the perspectives of the early childhood educators is that transdisciplinary approach supports children's developmental domains. Previous research studies support this perspective, and a study in Australia and Singapore, focusing on the early years of the PYP program, found that pupils' literacy skills were well developed, that school readiness was similar or better than that of children

enrolled in a traditional early-year program, and that they showed basic improvement. The results suggest that they acquire faster learning skills than the comparative sample (Morrisse et al., 2014). Standardized test analysis in New Zealand showed that academic achievement in PYP schools often exceeds academic achievement in schools with a similar school population (Kushner et al., 2016). Also, Hartzler (2000) found that integrated programs make contribution to main cognitive areas such as math, science and language. This finding may be explained by the fact that this approach contains integration of different disciplines. Therefore, educators can find beneficial of it such as providing various activities based on their classroom experiences.

5.1.5. Perspectives of Early Childhood Educators About the Possible Difficulties of Implementing the Transdisciplinary Approach

The participants in the study shared that possible difficulties might arise while implementing the transdisciplinary approach. One of the perspectives of the participants regarding the possible difficulties of implementing the transdisciplinary approach is that it is difficult to implement. Implementation of the models of the integrated curriculum requires sufficient subject knowledge for teachers. When teachers have sufficient subject knowledge, they can combine with children's real life and experiences. Without subject knowledge, implementation is difficult for teachers (Ellis, 2001; Grossman et al., 2000). It may show that educators do not have sufficient knowledge about the implementation of the transdisciplinary approach in early childhood education. Therefore, they thought that it may be difficult in terms of implementation.

Another perspective of the participants is that insufficient knowledge about implementation makes difficult the process of the implementation of the transdisciplinary approach. Disciplines were arranged around a main theme. Transdisciplinary approach arranges the program around children's questions and issues (Drake & Burns, 2004). A study was conducted with teachers, and found that resistance to transdisciplinary approach came from four reasons such as teachers' lack of subject knowledge, identification of subject from teachers, insufficient

resources and time. A feeling of insufficient in subject knowledge was found to be a concern for teachers. Without sufficient subject knowledge, teachers found that teaching is difficult with the approach (Grossman et al., 2000). It may show that educators have not enough knowledge regarding the transdisciplinary approach in early childhood education.

One of the perspectives of the participants regarding the possible difficulties of implementing the transdisciplinary approach is that inadequate materials could make difficult the process of the implementation of the transdisciplinary approach. A research study was conducted in China, and found that teachers need additional materials for the implementation of the integrated curriculum (Zhang, 2007). It might demonstrate that educators need extra teaching materials when they implement a new concept or approach. Also, kindergarten classroom may have no sufficient materials for implementation.

One of the perspectives of the participants regarding the possible difficulties of implementing the transdisciplinary approach is that inadequate time could make difficult the process of the implementation of the transdisciplinary approach. Educators need a time for implementing an activity based on the transdisciplinary approach since planning of the transdisciplinary approach requires collaboration among the educators. Meetings and discussion are needed for the organization of the transdisciplinary unit. Educators arrange strategies, activities and how these can be applied in the classroom (Biro, 2003). Teachers need additional time for the planning of the integration since they make collaboration with other teachers, and they select and arrange the topic with others (Grossman et al., 2000). The findings of the study revealed that educators need a time for planning of the children teaching.

5.1.6. Perspectives of Early Childhood Educators Regarding the Characteristic Features of the Transdisciplinary Approach

The participants in the current research study shared perspectives of characteristic features of the transdisciplinary approach such as problem-based learning, inquiry-based learning and effective and meaningful learning. One characteristic feature of

the transdisciplinary approach is problem-based learning. One of the perspectives of the participants is that problem-based learning encourages children to find their own solutions. Problem-based provides children to have empirical and meaningful learning, and children solve the problems with the help of the past experiences (Barrows & Tamblyn, 1980). Children are more active learner in the educational program which include problem-based learning. This program encourages children to build their own knowledge, and they have opportunity to find their own solution to the problems. In fact, they are responsible for their learning in this educational program (Hmelo-Silver, 2004). This finding may be explained by the fact that educators support problem-based learning in terms of the children's learning.

One of the perspectives of the participants is that problem-based learning improves thinking, researching, questioning skills. Learning occurs around the solution of the problems in problem-based learning. Children use thinking and questioning skills in small groups when they try to solve problems. While children are solving the problems, teachers can be facilitator of the learning (Barrows, 2000; Torp & Sage, 2002). Also, students in PYP schools showed more international awareness, questioning skills, and action than students in comparative schools (Kushner et al., 2016). Finally, a study conducted in Colombia demonstrating the suitability of PYP revealed that 89.3% of students enjoyed being students in PYP schools, and 90% were proud of their schools (Lester & Lochmiller, 2015). These are consistent with a small but growing research literature showing transdisciplinary approaches to teaching and learning, leading to better or better academic outcomes than traditional disciplinary approaches (Sillisano et al., 2010; Tan & Bibby, 2010). It might demonstrate that educators have positive view on the problem-based learning because they may know the importance of thinking, researching, questioning skills in early childhood education.

Another characteristic feature of the transdisciplinary approach stated is inquiry-based learning. One of the perspectives of the participants is that inquiry-based learning provides comprehensive and permanent learning. Learning is started with a problem or question in the inquiry-based learning. Children try to build their learning with their knowledge (Lee et al., 2004). According to Levy (2009),

children investigate questions or problem in the inquiry-based learning. It means that it is discovery-oriented. It encourages children to think deeply problems or questions (Harada & Yoshina, 2004). In this respect, it may be concluded that educators may give importance of comprehensive and permanent learning for young children because their learning in preschool can affect their future educational and daily life.

Another perspective of the participants is that inquiry-based learning supports different developmental characteristics of children. A number of studies have demonstrated that there are some benefits of inquiry-based learning for children. It supports children's understanding of scientific processes and critical thinking (Cavallo et al., 2004; Glasson & McKenzie, 1998; Haury, 1993). Moreover, inquiry-based learning supports children's understanding of the scientific techniques (Keller et. al., 2000). Furthermore, using the transdisciplinary approaches in the teaching process improves skills of the empathy, impulse control, and problem-solving. In addition to this, it provides motivation to learn for children (Durlak et al., 2011). The findings set forth that educators give importance of the children's development. It can be made an impact on cognitive development for children.

One of the perspectives of the participants is that inquiry-based learning improves problem-solving skills. Inquiry-based learning provides practical technique since it provides connections between past knowledge and natural world. In this way, children's problem-solving skills become better (Nuangchalerm & Thammasena, 2009). When children have inquiry-based learning experiences, they have more scientifically-oriented questions, and they try to evaluate and find solutions to the questions (National Research Council, 2000). This finding may be explained by the fact that problem-solving skills are crucial for children's development, so educators maybe placed emphasis on the problem-solving skills for young children.

One of the perspectives of the participants is that inquiry-based supports learning with real life problems. Complex problems regarding the real life require transdisciplinary approaches (Ackoff, 1999). People collaborate with other people

when they try to solve real life problems (Max-Neef, 2005; Jantsch, 1970). According to Piaget (1972), transdisciplinary approach tries to solve complex issues in the real world. As a result, in line with the findings of this research, children live in the real world, so teachers may thought that learning problems related to real life is important for children.

Another characteristic stated about the transdisciplinary approach is effective and meaningful learning. One of the perspectives of the participants is that effective and meaningful learning requires preparing effective activities. Planning of the learning requires the systematic process of making decisions what and how children learn. Process of the planning is mostly the responsibility of the educators. They make decision regarding the teaching and learning processes (Borich, 2007). During the planning process, determining the aims is crucial. Preparing effective lesson plan is important for children's learning. Lesson plans have influence on teaching process and classroom management (Wong et al., 2009). It may be concluded that educators prepare lots of activity for children in the classroom, so they may realize the significance of the effective activities based on their classroom experience.

One of the perspectives of the participants is that effective and meaningful learning requires using different methods and techniques. Transdisciplinary approaches are constantly changing to transform separate disciplines and to fit to the altering reality of complex issues that people try to find the solution (Jantsch, 1970). Transdisciplinary approach which use from people, require to alter their teaching methods in order to provide effective learning for children. Educators often have problems to integrate new teaching methods and techniques to use the changing complex issues (Snowden & Boone, 2007). In this respect, it may be concluded that that educators use different methods and techniques in their classroom. When they use different methods in order to provide effective teaching, they have opportunity to evaluate technique or method, and they maybe try to find effective technique or method for children's learnnig.

One of the perspectives of the participants is that effective and meaningful learning requires receiving feedbacks. Using feedback for learning perceived by teachers. In

fact, it is not usually used in order to provide motivation and improvement of teaching (Kluger & DeNisi 1996). Some factors have effect on using of the feedback. Actually, improvement occurs when recipients such as teachers are positive perspective about receiving feedback. Also, their reaction of it is important. They evaluate these feedbacks, and go into action for improvement (Hattie & Timperley, 2007). This finding may be explained by the fact that educators received feedbacks from children in their classroom. Based on their experiences in the kindergarten classroom, they notice benefits of receiving feedbacks from children.

5.2. Implications

This qualitative study makes contribution to literature on transdisciplinary approach since there is very limited research on transdisciplinary approach in early childhood education and perspectives of educators on the transdisciplinary approach in the world and particularly in Turkey. Also, with the help of in-depth interviews, this research study throws light on how transdisciplinary approach is viewed by early childhood teachers in detail. In other words, this research study provided early childhood teachers to share their perspectives about transdisciplinary approach in early childhood education. With the help of the interviews, early childhood teachers were given chance to describe how they view and perceive the transdisciplinary approach and reasons behind their perspectives. Furthermore, early childhood educators in this study shared ideas about possible advantages and difficulties of the transdisciplinary approach in the implementation process. As a consequence of this, they expressed an opinion about transdisciplinary approach in early childhood education based on the characteristic features of this approach.

Purpose of this study was to investigate early childhood educators' perspectives on the transdisciplinary approach in early childhood education. Generally, early childhood educators were found to have positive perspectives on the transdisciplinary approach in early childhood education. In fact, the positive perspective on the transdisciplinary approach were mostly related with the benefits on children's learning and development. This demonstrated that early childhood

educators took bright view of the transdisciplinary approach in early childhood education.

One of the results relates to early childhood educators' perspectives on the transdisciplinary approach before and after definition was given. They initially expressed mostly neutral perspectives on the approach. After definition was given to early childhood educators, they shared mostly positive perspective on the transdisciplinary approach. This indicated that their neutral perspectives were not put up resistance to change. More precisely, early childhood educators who had neutral and negative perspectives about transdisciplinary approach, changed their perspectives after definition of the approach was given since they thought it benefits on children's learning.

Another crucial result provided by the research study is related to early childhood educators' perspectives on the possible difficulties of implementing transdisciplinary approach in early childhood education. It was found that implementing transdisciplinary approach can be difficult because of insufficient knowledge about implementation and inadequate materials and time. Therefore, early childhood educators should be knowledgeable about transdisciplinary approach before implementing it in their classroom. This finding may help creators of educational program to understand needs of the educators based on the transdisciplinary approach.

One of the implications is that transdisciplinary approach may be added in the course of the curriculum in the early childhood education in order to teach candidate early childhood teachers. If it cannot be added in the course, seminar may be arranged about educational approaches such as transdisciplinary approach.

One of the implications was that that transdisciplinary approach may be a part of in-service training for early childhood educators. There can be some training for in-service early childhood educators in order to learn and practice transdisciplinary approach in their kindergarten classrooms. In other words, course or seminar can be

provided to early childhood educators. These courses or seminar can enable early childhood educators to have knowledge about transdisciplinary approach.

Another implication was related to implementation of the transdisciplinary approach and early childhood education. MoNE early childhood education program benefited from different models and approaches in Turkey. Maybe, creators of the early childhood education program can benefit from transdisciplinary approach in the process of developing a program.

5.3. Limitations

In this research study, there are some limitations which are mainly related with participants. The first limitation is the homogeneity of the participants. In fact, there are no male early childhood educator could be founded by the researcher. The second limitation is that only the perspectives of early childhood educators who worked in public school, were collected. Maybe, early childhood educators who worked in private school, could enhance the findings of this research study. Third limitation is that the definition of the transdisciplinary approach was given to the participants before asking the interview questions about it. After giving the definition of it, participants' opinions were taken. This situation could make impact on participants' perspectives.

5.4. Recommendations for Further Studies

In this part of this study, in line with the results of the research, suggestions are given for the researchers. This study explores educators' perspectives on the transdisciplinary approach in early childhood education. It is aimed to explain the concept of transdisciplinary teaching and to identify the possible positive and negative factors that affect this process for the development of curriculum with transdisciplinary teaching practices. It is also a research study to determine the boundaries and effects of transdisciplinary teaching related to the subject. 20 participants attended this study. It can be limited in terms of generalizability. Therefore, the research may be applied with many participants.

The study group of this study consists of early childhood educators who provide education to the 3-6 age group. Related subjects can be researched with teachers who teach different age groups. Thus, the effect of approaches can be examined according to their level of cognitive development. In addition to this, the research sample consists of teachers. At this point, it is recommended that the study be conducted by determining a research sample for administrators.

The data collection technique used in this research is qualitative data collection. It is recommended to expand the sample of the study and to use a quantitative method using relevant scales. In this way, researchers can reach many participants. In this way, different statistical results can be included.



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APPENDICES

A. INTERVIEW PROTOCOL /GÖRÜŞME SORULARI

A. Kişisel Bilgiler

Kıdemi:

Cinsiyeti:

B. Görüşme Soruları

- 1.) Okul öncesi eğitimde farklı disiplinlerin birleştirilmesi konusunda ne düşünüyorsunuz?
- 2.) Farklı disiplinleri birleştirdiğiniz bir öğretmenlik deneyiminizi paylaşır mısınız?
 - Disiplinler üstü yaklaşımı hiç duydunuz mu? Duyduysanız disiplinler üstü yaklaşım hakkında ne biliyorsunuz?

Kısaca disiplinler üstü yaklaşımın tanımı verilir.

“Geleneksel disiplinler arasındaki sınırları kaldıran, eğitimi ve öğretimi gerçek dünya ile ilişkilendiren sorunlar veya temalar çerçevesinde ele alan bir bütünleştirilmiş eğitim programı yaklaşımıdır.” (UNESCO, 2013, n.d.)

Bu tanımdan yola çıkarak geriye kalan sorular cevaplanır.

- 3.) Sizce disiplinler üstü eğitim nedir ve neyi amaçlar?
 - 3.a. Okul öncesi eğitimde disiplinler üstü eğitimin olumlu/olumsuz yönleri neler olabilir?
 - 3.b. Okul öncesi eğitimde problem çözmeye dayalı eğitim programı deyince ne anlıyorsunuz?
 - 3.c. Okul öncesinde eğitimde sorgulama dayalı eğitim deyince ne anlıyorsunuz?
 - 3.d. Çocuklara sorgulama becerisi kazandırmak için ders planlarınızı nasıl düzenliyorsunuz?
 - 3.e. Çocuklarda etkili ve anlamlı öğrenmeyi sağlamak için neler yapıyorsunuz?
- 4.) Hazırladığınız ders planlarınızda, gerçek dünyayı temel alan ve günlük hayat ile ilişkili hangi konulara yer veriyorsunuz?
- 5.) Hazırladığınız ders planlarınızda, gerçek dünyayı temel alan ve günlük hayat ile ilişkili konulara ne kadar yer veriyorsunuz?
- 6.) Ders planlarınızda farklı disiplinleri birleştirirken ne gibi zorluklar yaşıyorsunuz?

**B. APPROVAL OF THE METU HUMAN SUBJECTS ETHICS
COMMITTEE / İNSAN ARAŞTIRMALARI ETİK KURULU ONAYI**

UYGULAMALI ETİK ARAŞTIRMA MERKEZİ
APPLIED ETHICS RESEARCH CENTER



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26 MART 2019

Konu: Değerlendirme Sonucu

Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (İAEK)

İlgi: İnsan Araştırmaları Etik Kurulu Başvurusu

Sayın Dr.Öğretim Üyesi Hasibe Özlen DEMİRCAN

Danışmanlığını yaptığınız Fatma DEMİRCİ'nin "Okul Öncesi Öğretmenlerinin disiplinler üstü yaklaşım hakkındaki görüşlerinin incelenmesi" başlıklı araştırması İnsan Araştırmaları Etik Kurulu tarafından uygun görülmüş ve 123-ODTÜ-2019 protokol numarası ile onaylanmıştır.

Saygılarımızla bilgilerinize sunarız

Prof. Dr. Tülin GENÇOZ

Başkan

Prof. Dr. Ayhan SOL

Üye

Prof. Dr. Ayhan Gürbüz DEMİR

Üye

Prof. Dr. Yaşar KONDAKÇI (4.)

Üye

Doç. Dr. Emre SELÇUK

Üye

Doç. Dr. Pınar KAYGAN

Üye

Dr. Öğr. Üyesi Ali Emre TURGUT

Üye

C. CONSENT FORM /ARAŞTIRMAYA GÖNÜLLÜ KATILIM FORMU

Bu araştırma; ODTÜ Temel Eğitim Bölümü, Okul Öncesi Eğitimi Anabilim Dalı Yüksek Lisans öğrencisi Fatma Demirci tarafından Dr. Öğr. Üyesi Hasibe Özlen Demircan danışmanlığındaki yüksek lisans tezi kapsamında yürütülmektedir. Bu form sizi araştırma koşulları hakkında bilgilendirmek için hazırlanmıştır.

Çalışmanın Amacı Nedir?

Araştırmanın amacı, okul öncesi eğitiminde disiplinler üstü yaklaşım konusunda okul öncesi öğretmenlerinin görüşlerinin incelenmesidir.

Bize Nasıl Yardımcı Olmanızı İsteyeceğiz?

Araştırmaya katılmayı kabul ederseniz, sizinle görüşme yapılacaktır. Yaklaşık olarak bir saat sürmesi beklenen bu görüşmede sizlere bir dizi soru yöneltilecek ve bu sorulara vereceğiniz cevaplar kaydedilecek ve içerik analizi ile değerlendirilmek üzere cevaplarınızın ses kaydı alınacaktır.

Sizden Topladığımız Bilgileri Nasıl Kullanacağız?

Araştırmaya katılımınız tamamen gönüllülük temelinde olmalıdır. Çalışmada sizden kimlik veya kurum belirleyici hiçbir bilgi istenmemektedir. Cevaplarınız tamamıyla gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir. Katılımcılardan elde edilecek bilgiler toplu halde değerlendirilecek ve bilimsel yayımlarda kullanılacaktır.

Katılımınızla ilgili bilmeniz gerekenler:

Görüşme, genel olarak kişisel rahatsızlık verecek sorular veya uygulamalar içermemektedir. Ancak, katılım sırasında sorulardan ya da herhangi başka bir nedenden ötürü kendinizi rahatsız hissederseniz görüşmeyi yarıda bırakıp çıkmakta serbestsiniz. Böyle bir durumda çalışmayı uygulayan kişiye çalışmadan çıkmak istediğinizi söylemek yeterli olacaktır.

Araştırmayla ilgili daha fazla bilgi almak isterseniz:

Görüşme sonunda, bu çalışmayla ilgili sorularınız cevaplanacaktır. Bu çalışmaya katıldığınız için şimdiden teşekkür ederiz. Çalışma hakkında daha fazla bilgi almak için Temel Eğitim Bölümü öğretim üyelerinden Dr. Öğretim Üyesi Hasibe Özlen Demircan (E-posta: dozlen@metu.edu.tr) ya da yüksek lisans öğrencisi Fatma Demirci (E-posta: fatma.demirci_01@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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D. TURKISH SUMMARY / TRKE ZET

1. GİRİŞ

21. yzyıldaki btn eēitim kurumlarının temel amacı, bulunduēu lkede yaşıyan insanları eēitmektir (Gardner, 1999). Dnyanın hızla deēiştiiēi ve yarının dnyasının ok farklı olacaēı yadsınamaz bir gerektir. Dolayısıyla, gelecekte yaşıyacak olan toplumlarda, insanların geleneksel yollarla stesinden gelemeyecekleri sorunların ve karmaşıklıkların ortaya ıkması beklenmektedir (Kahane, 2004). Ekonomi ve teknolojinin hızla geliřimi sonunda ortaya ıkan karmaşı ve sorunların zlmesi, bunların zmnde insanların ve toplumun birbiriyle baēlantı kurması gerektirir (Page ve Shapiro, 2010). Eēitim, insanları topluma hazırlayan ana paralardan biridir (Dewey, 1938). Amerika Birleřik Devletleri Ulusal Bilimler Akademisi (NAS, 2004) raporuna gre; fizik, matematik, kimya, mhendislik gibi alanların birleřtirilmesiyle gelecekteki sorunlar ile bař edilebilir ve disiplinlerin birleřtirilmesi, gelecekteki sorunlara yeniliki zmler bulunmasına katkı saēlar. Eēitim alanında disiplinlerin birleřtirilmesi, eēitim programının yeniden tasarlanmasıyla bařarılabilir. Eēitim programı, dinamik bir yapıdadır. Bundan dolayı; yeni yaklaşımlar, bilgiler ve eēitim metodları ile birlikte kendini zaman iinde yenilemektedir (Abagi, vd., 2000; Kiminza, 2000).

Farklı disiplinlerin birleřtirilmesi, btnleřtirilmiř eēitim programı ile saēlanabilir. Btnleřtirilmiř eēitim programı birok tanıma sahiptir (Drake & Burns, 2004; Jacobs, 1989; Fogarty, 1991). Btnleřtirilmiř eēitim programı, ērenmeye btncl bir řekilde yaklaşı ve ocukların resme bir btnden bakmasını saēlar. ocukların disiplinler veya alanlar arasında baē kurmasını destekler (Brazee&Capelluti, 1995). ocuklar, disiplinler arasında baē kuramazlar ise ērenmelerini yeni durumlara veya sorunlara aktaramayabilirler (Lake, 2001). Her ne kadar btnleřtirilmiř eēitim programı kullanılmakta olsa da farklı disiplinleri birleřtiren etkili pedagojik yaklaşımlar sınırlıdır (Repko 2007; Repko, vd., 2013).

Her eğitimci, eğitim programına farklı bir bakış açısıyla bakar ve değerlendirir. Dolayısıyla, disiplinlerin birleştirilmesi sürecinde eğitim programı oluşturulurken farklı yaklaşımlar kullanılır (Hyman, 1973). Eğitim programında kullanılan farklı yaklaşımların hem avantajları hem de dezavantajları vardır (Jacobs, 1989). Fogarty (1991), bütünleştirilmiş eğitim programında kullanılabilecek on tane eğitim yaklaşımı önermiştir. Bunlar; parçalanmış eğitim yaklaşımı, bağlanmış eğitim yaklaşımı, yuvalanmış eğitim yaklaşımı, ardışık eğitim yaklaşımı, paylaşımlı eğitim yaklaşımı, ağ eğitim yaklaşımı, ip eğitim yaklaşımı, bütünleşmiş eğitim yaklaşımı, daldırılmış eğitim yaklaşımı ve şebeke eğitim yaklaşımıdır. Jacobs (1989) ise; disiplin tabanlı yaklaşımlar, paralel disiplin yaklaşımları, multidisipliner birimler veya kurslar, disiplinlerarası birimler / kurslar, bütünleşik gün modelleri ve tam programlar gibi eğitimcilerin kullanabileceği farklı seviyede yaklaşımlar önermiştir. Burns ve Drake (2004) göre ise, eğitimde disiplinlerin birleştirilmesi multi-disipliner, disiplinler arası ve disiplinler üstü adlı yaklaşımlar ile sağlanabilir. Bu yaklaşımlara ek olarak, günümüz dünyasında uygulanan ve farklı disiplinleri birleştiren yaklaşımlardan biri olan STEM; çocukları gelecekteki küresel dünyaya hazırlamayı amaçlamaktadır (Yakman & Lee, 2012).

Bütünleştirilmiş eğitim programı farklı modellerde uygulanmasına rağmen en üst basamağında bulunan model, disiplinler üstü yaklaşımıdır (Grady, 1994; Meeth, 1978). UNESCO (2013) disiplinler üstü yaklaşımı şöyle tanımlamaktadır:

Geleneksel disiplinler arasındaki sınırları kaldıran, eğitimi ve öğretimi gerçek dünya ile ilişkilendiren sorunlar veya temalar çerçevesinde ele alan bir bütünleştirilmiş eğitim programı yaklaşımıdır. (UNESCO, 2013, n.d.)

Disiplinler üstü yaklaşım, farklı disiplinleri birleştirerek aktif bir öğrenme sağlar (Harriss & Marsh, 2007). Bu yaklaşım türünde, içerik ve temalar benzer olur ve disiplinler arasında sınırlar olmaz (Drake, 1991; Grady, 1994). Farklı disiplinleri, bir tema çerçevesinde birleştirerek bir problemi ele alır. Disiplinler üstü yaklaşımı temel alan eğitim programları, çocukların soruları ve ilgileri doğrultusunda düzenlenir. Bu yaklaşım çerçevesinde, bütüncül bir eğitim ve öğretim desteklenir (Beane, 1997). Bu yaklaşım, global sorunlarla ilgilenir (McGregor, 2011). Disiplinler üstü yaklaşımın bazı karakteristik özellikleri vardır. Bunlar; disiplinler

arasında sınırların olmaması, yaratıcı ve eleştirel düşünceyi teşvik etmesi, proje temelli, problem temelli, öğrenci temelli öğrenmeyi sağlaması ve global sorunlar ile ilgilenmesidir (Nicolescu, 2007).

Okul öncesi eğitimde disiplinler üstü yaklaşım, Uluslararası Bakalorya Programı yardımıyla okul öncesi eğitim kurumlarında uygulanmaktadır (Uluslararası Bakalorya Programı, 2009). Bu programda yer alan bütün disiplinler, belli bir ünite ve tema altında toplanır (Uluslararası Bakalorya Programı, 2007). Eğitim programında tema kullanmanın çocuklar için birçok faydası vardır. Çocuklar, temalar ile farklı disiplinler arasında ilişki kurmayı öğrenir (Freeland & Hammons, 1998).

Eğitim yaklaşımlarını uygulayan ve bu uygulamadan sınıfta sorumlu olan kişiler öğretmenlerdir. Bu noktada, eğitimcilerinin bakış açılarını öğrenmek önem arz etmektedir çünkü eğitimcilerin bakış açıları sınıftaki uygulama sürecini etkileyecektir (Clark, 1988; Clark & Peterson, 1983). Alanyazına bakıldığında; eğitimcilerin, disiplinlerin birleştirilmesi ve bütünleştirilmiş eğitim programı konularında bakış açılarını ele alan çeşitli araştırmalar mevcuttur (Nas, 2004; Park, 2007; Lam vd., 2013; Uğraş & Genç, 2018). Bir eğitim programı geliştirme sürecinde, öğretmenler, herhangi bir eğitim yaklaşımının uygulamasında en önemli olan kişilerdir. Özellikle, yeni yaklaşımların uygulanması sürecinde öğretmenin önemi daha da artmaktadır (Johnson, 2001). Dünya, gittikçe daha birbirine bağlı hale gelmektedir (Friedman, 2006). Fakat, eğitim programı uygulayıcısı olan öğretmenlerin, sorunlara bütüncül bir şekilde yaklaşma konusunda pek başarılı bir eğilime sahip olmadıkları görülmektedir (Clark vd., 1995).

1.1. Çalışmanın Amacı

Bu çalışmanın amacı okul öncesi öğretmenlerinin disiplinler üstü yaklaşım konusundaki görüşlerini incelemektir.

1.2. Çalışmanın Önemi

Alanyazına bakıldığında; disiplinler üstü yaklaşımın çocuklarda eleştirel düşünmeyi, iletişim ve sorgulama becerisini geliştirdiği görülmektedir (Drake vd., 2015, Guyette, Sochaka, & Costantino, 2015; Sillisano vd., 2010; Tan & Bibby, 2010; Morrissey vd., 2014; Kushner vd., 2016). Ayrıca, disiplinler üstü yaklaşımın eğitime entegre edildiğinde, çocukların öğrenmesini, akademik başarılarını ve öğrenme motivasyonlarını destekleyeceği de düşünülmektedir (Gough vd., 2014). Bir diğer çalışmanın sonucu da disiplinler üstü yaklaşımın çocuklarda sosyal ve duygusal becerilerini geliştirdiğini göstermektedir (Durlak, vd., 2011). Bu araştırmaların sonuçları, disiplinler üstü yaklaşımın uygulanmasını destekler niteliktedir. Ancak, okul öncesinde disiplinler üstü yaklaşımla ilgili sınırlı araştırma bulunmaktadır.

Disiplinler üstü yaklaşımın çocuklara olan faydalarına yönelik birçok araştırma olmasına rağmen, öğretmenlerin bu yaklaşıma bakış açılarının ne olduğuna yönelik sınırlı çalışma bulunmaktadır. Lester ve Lochmiller (2015) göre, öğretmenler, yöneticiler ve çocuklar; disiplinler üstü yaklaşım konusunda pozitif bir görüşe sahiptirler. Disiplinler üstü yaklaşım, yeni bir kavramdır ve bu araştırma, Türkiye’deki devlet okullarında çalışan okul öncesi öğretmenlerinin disiplinler üstü yaklaşım konusundaki bakış açılarını öğrenmeyi amaçlamaktadır. Bu araştırmanın, okul öncesinde disiplinler üstü yaklaşım alanyazınına katkı sağlayacağı düşünülmektedir. Araştırmanın bulgularının ve önerilerinin, eğitim programı tasarlayan eğitimcilere ve öğretmenlere yardımcı olacağı düşünülmektedir. Millî Eğitim Bakanlığı, Türkiye’de okul öncesinin gelişiminden sorumlu olan kurumdur ve eğitim programının geliştirilmesinde yetkili makamdır. Eğitim programının geliştirilmesi sürecinde, eğitim yaklaşımları belirlenir (Tekışık, 1995). Araştırmanın sonuçları bu noktada da kullanılabilir.

2. YÖNTEM

2.1. Araştırma Soruları

- 1: Okul öncesi öğretmenlerinin disiplinlerin birleştirilmesi konusundaki bakış açıları nelerdir?
 - 1.a. Okul öncesi eğitimde disiplinlerin birleştirilmesinin faydaları nelerdir?
 - 1.b. Okul öncesi eğitimde disiplinlerin birleştirilmesinde yaşanan zorluklar nelerdir?
- 2: Okul öncesi öğretmenlerinin disiplinler üstü yaklaşım konusundaki bakış açıları nelerdir?
 - 2.a. Disiplinler üstü yaklaşımının okul öncesi eğitimde uygulanmasının etkileri neler olabilir?
 - 2.b. Okul öncesi öğretmenlerinin disiplinler üstü yaklaşımın karakteristik özellikleriyle ilgili bakış açıları nelerdir?
 - 2.c. Disiplinler üstü yaklaşımının okul öncesi eğitimde uygulanmasında ortaya çıkabilecek olası zorluklar neler olabilir?

2.2. Araştırma Yöntemi

Bu araştırma, nitel araştırma yöntemleri çerçevesinde yürütülmüş ve okul öncesi öğretmenlerinin, disiplinler üstü yaklaşım konusundaki bakış açılarını öğrenmek amacıyla bu araştırma yöntemi olarak kullanılmıştır. Araştırmanın bulguları, görüşme aracılığı ile elde edilmiştir.

2.3. Katılımcılar

Bu çalışmada, örneklem seçim yöntemi olarak kolay ulaşılabilir durum örnekleme yöntemi kullanılmıştır. Çalışmanın katılımcılarını, devlet okullarında çalışan 20 okul öncesi öğretmeni oluşturmaktadır. Katılımcıların gerçek isimleri kullanılmamıştır. Katılımcılara, P1’den P20’ye kadar takma isimler verilmiştir.

2.4. Veri Toplama Aracı ve Süreci

Bu araştırmanın verileri, yarı yapılandırılmış görüşme yardımıyla toplanmıştır. Araştırmacı, görüşme sorularını konu ile ilgili alanyazını inceleyerek oluşturmuş ve görüşme soruları uzman görüşü alınarak yeniden şekillendirilmiştir. Buna ek olarak, iki katılımcı ile pilot çalışma yapılmıştır. Pilot çalışma sonucuna göre görüşme soruları yeniden düzenlenmiştir. Görüşme soruları, toplam 6 ana sorudan oluşmaktadır.

Üniversitenin etik kurulundan ve Milli Eğitim Müdürlüğü'nden gerekli izinler alındıktan sonra veri toplanma sürecine başlanmıştır. Katılımcı okul öncesi öğretmenlerinin uygun olduğu zaman dilimleri belirlenip anaokulları içinde bir mekânda görüşmeler yapılmıştır.

2.5. Veri Analiz Süreci

Bu çalışmada, öğretmen adaylarından elde edilen veriler sınıflandırılarak kategoriler ve kodlar belirlenmiştir. Son olarak da çalışmanın bulguları tablolar yardımıyla sunulmuştur. Kategoriler ve kodlar, araştırmacı ile okul öncesi eğitimi bölümünde yüksek lisans öğrencisi olan bir araştırmacı tarafından ayrı ayrı belirlenmiştir. Kategoriler ve kodlar tartışılarak son hâli verilmiştir.

3. BULGULAR VE TARTIŞMA

Bu kısımda, katılımcı okul öncesi öğretmenlerinin kişisel bilgileri ve araştırmanın bulgularına yer verilmiştir.

3.1. Katılımcıların Kişisel Bilgileri

Bu çalışmaya, devlet okullarında çalışan toplam 20 okul öncesi öğretmeni katılmıştır. Katılımcıların öğretmenlik tecrübeleri 4 ile 24 yıl arasındadır. Tablo 1'de katılımcıların kişisel bilgilerine yer verilmiştir.

Tablo 1

Katılımcıların Kişisel Bilgileri

Katılımcı	Cinsiyet	Mesleki Çalışma Yılı (Kıdemi)
P1	Kadın	16
P2	Kadın	5
P3	Kadın	6
P4	Kadın	10
P5	Kadın	17
P6	Kadın	10
P7	Kadın	4
P8	Kadın	8
P9	Kadın	12
P10	Kadın	10
P11	Kadın	10
P12	Kadın	17
P13	Kadın	16
P14	Kadın	11
P15	Kadın	15
P16	Kadın	24
P17	Kadın	18
P18	Kadın	7
P19	Kadın	9
P20	Kadın	10

3.2. Araştırma Sorusu 1: Okul Öncesi Öğretmenlerinin Disiplinlerin Birleştirilmesi Konusundaki Bakış Açıları Nelerdir?

3.2.1. 1.a. Okul Öncesi Eğitimde Disiplinlerin Birleştirilmesinin Faydaları Nelerdir?

Bu alt araştırma sorusu için kategoriler ve kodlar oluşturulmuştur. Kategoriler ve kodlar bir tablo halinde sunulmuştur. Kodlar, üç kategori başlığında Tablo 2’de sunulmuştur.

Tablo 2

Katılımcıların Disiplinlerin Birleştirilmesi Konusundaki Görüşleri

Kategoriler	Alt-kategoriler	Kodlar
Pozitif Görüşler	Öğrenme	Etkili ve kalıcı öğrenme (n=6)
		Eğlenceli bir şekilde öğrenme (n=2)
		Çocukların ilgileri ve dikkati (n=2)
	Gelişim	Çocukların gelişimsel alanlarını desteklemesi (n=2)
		Çocukların becerilerini geliştirmesi (n=2)
Negatif Görüşler	Bütünlük	Aktiviteler arasında devamlılık sağlaması(n=3)
		Çok fazla zaman alması (n=2)
Nötr Görüşler	Bilgisi olmayan	Herhangi bir fikre sahip olmama (n=1)

Katılımcıların büyük çoğunluğu, okul öncesi eğitimde disiplinlerin birleştirilmesi konusunda olumlu görüşe sahiptirler. Bazı katılımcılar; disiplinlerin birleştirilmesinin çocuklarda etkili ve kalıcı öğrenmeyi desteklediğini dile getirmişlerdir. Bunlara benzer bulgular geçmiş yıllarda yapılan çalışmalarda da elde edilmiştir (Leung, 2006; Shriner vd., 2010; Bods vd., 1993; Lipson, vd., 1993). Disiplinlerin birleştirilmesi yardımıyla, çocuklar öğrendiklerini gerçek hayat ile ilişkilendirir. Bu ilişkilendirme, çocuklarda etkili ve kalıcı öğrenmeyi destekler (Bonds, vd., 1993). Bunun yanı sıra, katılımcılardan bazıları disiplinlerin birleştirilmesi konusunda olumsuz görüşe de sahiptirler. Olumsuz görüşlerden biri disiplinlerin birleştirilmesinin çok fazla zaman alması olarak belirtilmiştir. Katılımcılardan bir tanesi ise disiplinlerin birleştirilmesi konusunda herhangi bir fikre sahip olmadığını dile getirmiştir.

3.2.2. 1.b. Okul Öncesi Eğitimde Disiplinlerin Birleştirilmesinde Yaşanan Zorluklar Nelerdir?

Bu alt araştırma sorusu için kategoriler ve kodlar oluşturulmuştur. Kategoriler ve kodlar bir tablo halinde sunulmuştur. Kodlar, iki kategori başlığında Tablo 3'te sunulmuştur.

Tablo 3

Katılımcıların Disiplinlerin Birleştirilmesi Konusunda Yaşanan Zorluklar Hakkındaki Görüşleri

Kategoriler	Kodlar
Yetersizlikler	Materyal yetersizliği (n=5) Mekân yetersizliği (n=4) Zaman yetersizliği (n=2)
Sınıf ortamı	Sınıfta tek öğretmenin olması (n=6) Bireysel farklılıkları olan çocuklar (n=4)

Katılımcıların büyük çoğunluğu; okul öncesi eğitimde disiplinlerin birleştirilmesi konusunda yaşanan zorlukların, bazı yetersizliklerden kaynaklı olduğunu dile getirmişlerdir. Bazı katılımcılar, zaman yetersizliğinin disiplinlerin birleştirilmesini zorlaştırdığını belirtmişlerdir. MacMath'e göre (2011), bütünleştirilmiş eğitim programı uygulayan eğitimciler, bütünleştirilmiş etkinlikleri planlamak ve

düzenlemek için ekstra zamana ihtiyacı olduklarını belirtmiştir. Bazı katılımcılar ise, sınıfta tek öğretmen olarak bulunmanın, disiplinlerin birleştirilmesini zorlaştırabileceğini söylemişlerdir. İngiltere’de yürütülen bir çalışmaya göre (Blacthford vd., 2007); yardımcı öğretmenin, sınıfta öğrenmenin etkililiğini artırdığı ve sınıf yönetimini de kolaylaştırdığı sonuçlarına ulaşılmıştır. Sınıf ortamında yardımcı öğretmenin bulunması disiplinlerin birleştirilmesini kolaylaştırabilir.

3.3. Araştırma Sorusu 2: Okul Öncesi Öğretmenlerinin Disiplinler Üstü Yaklaşım Konusundaki Bakış Açıları Nelerdir?

Bu araştırma sorusu için kategoriler ve kodlar oluşturulmuştur. Kategoriler ve kodlar bir tablo şeklinde sunulmuştur. İlk olarak, disiplinler üstü yaklaşımı tanımlanmadan önceki görüşleri hakkında tablo oluşturulmuştur. Kodlar, üç kategori başlığında Tablo 4’te sunulmuştur.

Tablo 4
Katılımcıların Disiplinler Üstü Yaklaşımın Tanımı Verilmeden Önceki Görüşleri

Kategoriler	Kodlar
Pozitif görüşler	Farklı dersleri birleştirmesi (n=1)
Nötr görüşler	Herhangi bir fikre sahip olmama (n=18)
Konu dışı görüşler	Katı bir disiplin tekniği (n=1)

Katılımcıların tanımdan önceki görüşleri incelenmiş ve bulgular üç başlık altında toplanmıştır. Katılımcıların büyük çoğunluğunun, tanım verilmeden önce disiplinler üstü yaklaşım konusunda herhangi bir fikre sahip olmadıkları sonucuna ulaşılmıştır. Bir katılımcı ise disiplinler üstü yaklaşımın farklı derslerin birleştirilmesi olduğu yönünde olumlu görüşte bulunmuştur. Disiplinler üstü yaklaşım, farklı disiplinlerin veya derslerin birleştirilerek, çocukların disiplinler arasında bağlantı kurmasını sağlar. (Uluslararası Bakalorya Programı, 2009). Öte yandan, bir katılımcı konu dışı görüş olarak, disiplinler üstü yaklaşımın katı bir disiplin tekniği olabileceği ile ilgili görüşte bulunmuştur. Daha sonra disiplinler üstü yaklaşımın tanımı verildikten sonraki görüşleri hakkında tablo oluşturulmuştur. Kodlar, iki kategori başlığında Tablo 5’te sunulmuştur.

Tablo 5

Katılımcıların Disiplinler Üstü Yaklaşımın Tanımı Verildikten Sonraki Görüşleri

Kategoriler	Alt-kategoriler	Kodlar
Pozitif Görüşler	Birleştirme	Bir konuyu farklı açılardan öğrenme (n=6) Bütün disiplinleri birleştirmesi (n=3)
	Günlük yaşam	Disiplinlerin birleşmesinin günlük yaşam ile uyumu (n=4) Günlük yaşam bilgilerini kullanma (n=2)
	Etkinlik	Farklı disiplinlerin etkinlikte uygulanması (n=5)
Negatif Görüşler		Anlamasının ve uygulanmasının zor olması(n=1) Öğretim kaynaklarının yetersiz olması (n=1)

Katılımcıların tanımdan sonraki görüşleri incelendiğinde bulgular iki kategorik başlık altında toplanmıştır. Katılımcıların büyük çoğunluğunun tanım verildikten sonra disiplinler üstü yaklaşımının, bir konuyu farklı açılardan öğrenmeyi sağlayabileceği ve disiplinleri birleştirdiğine yönelik olumlu görüşte bulunmuştur. Disiplinler üstü yaklaşım, bir konuyu ya da durumu bütünleştirilmiş bir şekilde bütün disiplinlerin bakış açından alır ve disiplinleri birleştirir (Jacobs, 1989).

3.3.1. 2.a. Disiplinler Üstü Yaklaşımının Okul Öncesi Eğitimde Uygulanmasının Etkileri Neler Olabilir?

Bu alt araştırma sorusu için kategoriler ve kodlar oluşturulmuştur. Kategoriler ve kodlar bir tablo halinde sunulmuştur. Kodlar, üç kategori başlığında Tablo 6’da sunulmuştur.

Tablo 6

Katılımcıların Disiplinler Üstü Yaklaşımının Okul Öncesi Eğitimde Uygulanmasının Etkileri Konusundaki Görüşleri

Kategoriler	Kodlar
Öğrenme	Kalıcı öğrenme (n=6) Eğlenerek öğrenme (n=3) Aktif öğrenme (n=2)
Eğitim ortamı	Özgürlük(n=2) Farklı etkinlikler (n=2)
Gelişim	Farklı gelişimsel alanları desteklemesi (n=5)

Katılımcıların büyük çoğunluğu, disiplinler üstü yaklaşımın okul öncesi eğitimde uygulanması durumunda kalıcı öğrenmeyi destekleyebileceklerini dile getirmişlerdir. Disiplinler üstü yaklaşım, farklı disiplinlerden faydalanarak önemli bir sorun veya konu hakkında aktif bir öğrenme sağlar ve aktif öğrenme kalıcı öğrenmeyi destekler (Harrirs ve Marsh, 2007). Bir diğer görüş ise, disiplinler üstü yaklaşımın eğitim ortamını etkileyebileceğine dairdir. Katılımcıların bir kısmı; disiplinler üstü yaklaşımın, öğretmenler ve çocuklar için özgür bir eğitim ortamı sağlayabileceğini dile getirmişlerdir. Disiplinler üstü yaklaşımda, tema ve içerik benzerdir ve disiplinler arasında sınır yoktur (Drake, 1991; Grady, 1994). Disiplinler üstü yaklaşımın bu özelliğinden dolayı özgür bir eğitim ortamını destekleyebilir.

3.3.2. 2.b. Okul Öncesi Öğretmenlerinin Disiplinler Üstü Yaklaşımın Karakteristik Özellikleri ile İlgili Bakış Açıları Nelerdir?

Bu alt araştırma sorusu için kategoriler ve kodlar oluşturulmuştur. Kategoriler ve kodlar bir tablo halinde sunulmuştur. Kodlar, üç kategori başlığında Tablo 7’de sunulmuştur.

Tablo 7
Katılımcıların Disiplinler Üstü Yaklaşımın Karakteristik Özellikleri ile ilgili Görüşleri

Kategoriler	Alt-kategoriler	Kodlar
Problem temelli öğrenme	Problem temelli öğrenme	Çözüm yolları bulması konusunda teşvik etme (n=12) Düşünme, araştırma ve sorgulama becerileri (n=2)
	Öğrenme	Kapsamlı ve kalıcı öğrenme (n=3) Eğlenceli bir şekilde öğrenme (n=1) Gerçek hayat problemleriyle birlikte öğrenme (n=1)
Sorgulamaya dayalı öğrenme	Gelişim	Farklı gelişimsel karakteristik özellikleri destekleme (n=2) Problem çözme becerini geliştirme (n=2)
	Öğretim	Etkili aktiviteler hazırlama (n=5) Farklı metot ve teknikler kullanma (n=2) Geri dönüş alma (n=2) Yaparak öğrenme (n=5)
Etkili ve anlamlı öğrenme		

Katılımcıların büyük çoğunluğu; disiplinler üstü yaklaşımın karakteristik özelliklerinden biri olan problem temelli öğrenmenin; çocukları, problemlere kendi başlarına çözüm yolları bulması konusunda teşvik edebileceğini dile getirmişlerdir. Problem temelli öğrenme, çocuklarda anlamlı öğrenmeyi sağlar ve çocukların geçmiş tecrübelerinden yola çıkarak problemleri kendilerinin çözmesini destekler (Barrows & Tamblyn, 1980). Problem temelli öğrenmede, çocuklar aktif bir şekilde öğrenir ve onlar kendi öğrenmelerinden sorumlu olurlar (Hmelo-Silver, 2004). Buna ek olarak, katılımcıların bir kısmı; disiplinler üstü yaklaşımının karakteristik özelliklerinden biri olan sorgulamaya dayalı öğrenmenin kapsamlı ve kalıcı öğrenmeyi destekleyebileceğini dile getirmişlerdir. Sorgulamaya dayalı öğrenmede; öğrenme, bir problem veya soru ile başlar. Çocuklar, bu soru veya problem üzerinden giderek kendi öğrenmelerini gerçekleştirirler (Lee vd., 2004). Ayrıca, katılımcıların bir kısmı ise; disiplinler üstü yaklaşımının karakteristik özelliklerinden biri olan etkili ve anlamlı öğrenmenin, etkili aktiviteler hazırlayarak sağlanabileceğine dair görüş sergilemişlerdir. Öğrenmenin planlanması ve aktivitelerin belirlenmesi etkili bir öğrenme için gereklidir. Ders planlarının etkili bir şekilde hazırlanması, sınıfta öğretme süreci ve sınıf yönetimini de etkileyecektir (Wong vd., 2009).

3.3.3. 2.c. Disiplinler Üstü Yaklaşımının Okul Öncesi Eğitimde Uygulanmasında Ortaya Çıkabilecek Olası Zorluklar Neler Olabilir?

Bu alt araştırma sorusu için kategoriler ve kodlar oluşturulmuştur. Kategoriler ve kodlar bir tablo halinde sunulmuştur. Kodlar, üç kategori başlığında Tablo 8’de sunulmuştur.

Tablo 8
Katılımcıların Disiplinler Üstü Yaklaşımının Okul Öncesi Eğitimde Uygulanmasında Ortaya Çıkabilecek Olası Zorluklar Konusundaki Görüşleri

Kategoriler	Kodlar
Uygulama	Uygulanmasının zor olması(n=6) Uygulama konusunda yetersiz bilgiye sahip olunması(n=6)
Yetersizlik	Materyal eksikliği (n=3) Yetersiz zaman (n=3)

Disiplinler üstü yaklaşımının okul öncesi eğitimde uygulanmasında ortaya çıkabilecek olası zorluklar arasında uygulamanın zor olması, uygulama konusunda yetersiz bilgiye sahip olunması, materyal eksikliği ve yetersiz zamanı dile getirmişlerdir. Katılımcıların bir kısmı uygulama konusunda yetersiz bilgiye sahip olunmasını bir zorluk olarak görmüşlerdir. Bu konuyla ilgili alanyazın incelendiğinde; bütünleştirilmiş eğitim programı modellerinin uygulanması için öğretmenlerin konu ile ilgili yeterli bilgiye sahip olması gerekmektedir. Yeterli bilgiye sahip olunmadığında, sınıfta uygulama konusunda, öğretmenler zorluklar yaşayabilirler (Ellis, 2001; Grossman vd., 2000).

4. SONUÇ

Tüm bulgulara genel olarak bakıldığında; okul öncesi öğretmenlerinin disiplinler üstü yaklaşım konusunda olumlu bir görüşe sahip olduğu sonucuna ulaşılmıştır. Bu çalışmanın hem disiplinler üstü yaklaşımı anlama hem de okul öncesi öğretmenlerinin disiplinler üstü yaklaşım konusundaki bakış açılarını öğrenmede faydalı olabileceği düşünülmektedir. Bir diğer sonuç ise okul öncesi öğretmenlerinin eğitim programında farklı disiplinlerin birleştirilmesi konusunda olumlu bir görüşe sahip olduğuna ulaşılmıştır. Ancak, bazı katılımcılar disiplinler üstü yaklaşımın anlaşılmasının ve uygulanmasının zor olması ve öğretim kaynaklarının eksikliği gibi nedenlerden dolayı uygulama konusunda tereddütlere sahiptirler.

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