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CHANGES IN TEACHERS' PERSONAL EPISTEMOLOGY
ON A FORMAL IN-SERVICE TRAINING COURSE

A DOCTORAL DISSERTATION

BY

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CURRICULUM AND INSTRUCTION

İHSAN DOĞRAMACI BİLKENT UNIVERSITY
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I would like to dedicate this work to my family
for their enduring support



Changes in Teachers' Personal Epistemology
on a Formal In-Service Training Course

The Graduate School of Education

of

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Hilal Handan Atlı

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ABSTRACT**CHANGES IN TEACHERS' PERSONAL EPISTEMOLOGY
ON A FORMAL IN-SERVICE TRAINING COURSE**

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Ph. D. in Curriculum and Instruction

Advisor: Asst. Prof. Dr. John O'Dwyer

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Teachers' personal epistemological beliefs, formed from earlier experiences, are credited with influencing classroom teaching, although the extent of the relationship between beliefs and practice is debated. This longitudinal study researches the epistemological beliefs of four novice English language teachers during a year-long in-service course, and six months beyond. The analytical framework adopts an interpretative approach within a case-study to explore informants' beliefs about knowledge, teaching and learning, and professional learning. Beliefs, determined through hermeneutic dialogue, are compared to practice determined empirically through classroom observation. Using Schommer's 1990 theoretical framework beliefs are categorized under five factors and twelve subsets, distinguishing complex from naïve beliefs, with complex beliefs reflecting constructivist practice targeted on the course. Nine pathways reveal distinct patterns of change in implicit, professed, and enacted epistemological beliefs in relation to classroom practice during the study. The level of sophistication of epistemological beliefs played a major role in whether targeted practices were assimilated easily into classroom practice, or accommodated more slowly, and whether they were sustained beyond the in-service course. Exploring situated cognition within the workplace, part of the analytical framework, showed that some gains made through in-service learning were reversed in response to contextual factors. Results evidence a connection between epistemological beliefs and classroom enactment, with the implication that understanding and following teachers' epistemological beliefs can enhance in-service teacher education outcomes. The findings suggest that in-service teacher educators and workplace leaders develop common policies to strengthen and sustain gains in professional learning and targeted classroom practice.

Keywords: personal epistemological beliefs, implicit beliefs, episodic memory, in-service teacher education, teaching context, workplace learning

ÖZET

HİZMET İÇİ EĞİTİM KURSU ALAN ÖĞRETMENLERİN KİŞİSEL EPISTEMOLOJİLERİNDEKİ DEĞİŞİKLİKLER

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İnançlar ve uygulama arasındaki ilişkinin kapsamı sorgulanabilir olsa da öğretmenlerin önceki deneyimlerden oluşan kişisel epistemolojik inançlarının sınıftaki uygulamaları üzerinde etkisi olduğu kabul edilmektedir. Bu uzun süreli çalışma, yeni istihdam edilmiş dört deneyimsiz İngilizce öğretmenin bir yıl süren hizmet içi sertifika kursunda ve takip eden altı ay süresindeki epistemolojik inançlarını araştırmaktadır. Durum çalışmasında analitik çerçeve olarak katılımcıların genel bilgi, öğrenme ve öğretme, ve mesleki eğitimle ilgili inançlarını incelemek için yorumlayıcı yaklaşım kullanılmıştır. Hermeneutik diyalog ile belirlenen inançlar, deneysel olarak sınıf gözlemlerinde saptanan eylemleri ile karşılaştırılmıştır. Naif inançları kompleks inançlardan ayırt edebilmek için Schommer'in 1990 teorik çerçevesi kullanılarak inançlar beş faktör ve on iki alt grup altında kategorize edilmiştir. Kompleks inanç mesleki eğitim programında hedeflenen yapılandırıcı uygulamayı yansıtmaktadır. Çalışma sürecinde verilerden edinilen veriler öğretmenlerin sınıf uygulamalarına ilişkin örtük, iddia ve icra edilen epistemolojik inançlarla ilgili dokuz ayırt edici yol önerilmektedir. Bu bağlamda, epistemolojik inançların çok yönlülük derecesi, hedeflenen sınıf uygulamaların sınıf eylemlerinde kolayca özümsemişi mi yoksa yavaş yavaş yer edindiği mi, hizmet içi eğitim sürecinin sonrasında devam ettirilip ettirilmediğine dair önemli rol oynadığını ortaya çıkarılmıştır. Analitik çerçevesinin bir unsuru olarak, çalışma yeri dahilinde konumlanmış bilişin araştırılması hizmet içi eğitimden edinilen kazanımların bağlamsal faktörlerden dolayı gerilediğini göstermektedir. Bulgular, epistemolojik inançlar ve sınıfta ortaya koyulan eylemler arasında görülebilir bir bağlantı olduğunu kanıtlamaktadır, bu durum öğretmenlerin epistemolojik inançlarını anlama ve takip etmenin, hizmet içi eğitimin sonuçları üzerindeki önemini göstermektedir. Sonuçlar, hizmet içi eğitimden edinilen kazanımlar ve hedeflenen sınıf içi uygulamaların güçlendirilip sürdürülebilmesi için hizmet içi öğretmenler ve okul yöneticilerinin ortak plan izlemeleri gerektiğini önermektedir.

Anahtar Kelimeler: kişisel epistemolojik inançlar, örtük inançlar, olaysal bellek, hizmet içi öğretmen eğitimi, öğretim bağlamı, işyeri bağlamı öğrenme

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CHAPTER 1: INTRODUCTION

Background

Teacher epistemological beliefs hold potential as an explanatory variable for how classroom teaching is shaped and delivered. Beliefs formed from life experiences, as a student, or through teacher education and classroom experience may positively impact teaching effectiveness or may hinder adopting more effective ways of doing (Cheng et al., 2009; Ham & Dekkers, 2014). If prior beliefs regarding the source of knowledge and knowing rather than trained knowledge are instrumental in determining how teachers organize effective student learning, then understanding the nature of those beliefs and how they might influence classroom practice and their susceptibility to change, will be key factors in approaches to teacher education (Assen et al., 2016; Nghia, 2017; Penner-Wiliams et al., 2019; Tanase & Wang, 2010).

This study sets out to explore the epistemological beliefs of four teachers in a language teaching context over a year-long initial in-service teacher education program and one semester after completion. The selected participants' epistemological beliefs about knowledge and knowing, language learning and teaching, and professional learning were gathered longitudinally and analyzed with a view to gauging the extent to which the beliefs were congruent with classroom practice, and whether beliefs and related practice changed over time.

The study is set in the context of an English preparatory program in a Turkish University, where every year a large influx of language teachers come from a mix of

different backgrounds and nationalities. In order to ensure quality teaching in the classroom, as well as encourage teacher retention, the preparatory program saw to it that these new language teachers received appropriate support during their socialization to the new teaching context, and, for a number of them, to the teaching profession.

Table 1 summarizes the diverse backgrounds of the 2015-16 cohort of new English language teachers, the target informants in the study, showing their different training and teaching experiences, as well as their provenance. Seven of the newly hired teachers were new to the profession, a number were new to the country, and a range of previous experience was evident across the group. The support provided to newly recruited teachers with less than five years full-time teaching experience consisted of a year-long, structured induction program, integrated with a formal certification program, externally moderated and certified by *Cambridge English*. The certificate program also served as a tool to assess whether teachers met institutional quality and probation requirements.

Accommodating to in-service teaching as a newly hired member of a school may be a fraught process (Farell, 2006), and successful accommodation is a fundamental factor in whether new teachers choose to remain in the teaching profession (Schmidt, 2008). Thus, the induction program was designed to smooth the process of adaptation to the new context to help both novice and more experienced teachers to apply the knowledge and teaching skills acquired during their prior training, and previous experience where appropriate, in a supported work environment.

On the face of it, it seems logical to suggest that success in accommodating to a new work context largely depends on the success with which teachers have been

Table 1*Backgrounds of 2015-16 Newly Recruited English Language Teachers*

	BA ELT/ TESOL	BA Non- ELT	MA ELT/ TESOL	MA Non- ELT	Years of Teaching Experience	Taught in Other Countries
National Teachers	8	7	2	4	New = 5 2-3yrs = 3 4-5yrs = 6 7 yrs = 1	3/15
International Teachers	1	9	2	3	New = 2 2-3yrs = 4 4-5 yrs = 2 7-9 yrs = 2	6/10

Note. BA = bachelor's degree, MA = master's degree, ELT = English language teaching, TESOL = teaching English to speakers of other languages.

prepared for their new roles during their pre-service programs. For some, success might also depend on the accumulated experience gained from previous work contexts. In this scenario, then, members new to the profession would rely on pre-service teacher training practices from pre-service teacher education courses to survive and prosper in a new teaching context, equipped with a set of newly acquired teaching skills and a range of methodological options. However, literature suggests that, despite pre-service teacher preparation programs, new graduates may enter their new profession still holding personal epistemologies considered naïve. In other words, their beliefs and related teaching may not reflect optimal practice for the new work context.

We might ask whether a formal induction program will ensure that teachers will immediately and optimally put into practice, under renewed guidance, knowledge, skills, and attitudes developed in their previous professional learning

programs; or, whether other factors may intervene to shape their teaching style and its effectiveness in the classroom. Thomas and Beauchamp (2007) show that new teachers were aware of their ideal roles but uncertain how to achieve a seamless integration into their profession. Other studies have shown that although pre-service teachers learn innovative, constructivist strategies to optimize effective student learning, when they start teaching, they tend to revert back to more traditional teaching methods (Borg 2004). Teachers go through phases during the process of becoming a teacher in which their earlier beliefs play an integral role (Borg, 2011; Farrell, 2003; Phipps, 2010).

Evidence suggests, then, that new teachers do not fall back on their formal training when negotiating the challenges of adapting to a new context but may reach further back into their past life experiences, and experiences as a learner themselves, as the framework within which they plan their teaching and its delivery. Such earlier formed beliefs seem to play a role in shaping classroom practice, particularly when teachers are confronted with some of the stress factors which accompany newly trained teachers into the new work context. Such stress factors may be compounded for teachers working in a different country and culture for the first time.

In the next section we look at the nature of beliefs; in particular, how they might be defined, what distinguishes them from knowledge, and what the knowledge and belief systems of teachers are. A discussion then follows on how beliefs are created, with a closer look at what differentiates implicit, professed, and enacted, beliefs.

Defining Beliefs

According to Pajares, in his 1992 review of the literature, the difficulties faced while investigating teacher beliefs arise from definitional problems, poor

conceptualization, and differing understandings of beliefs and belief structures. He cites references that explain that a change in perspective was needed to better understand teacher behaviors by focusing on the things and ways that teachers believe, on the assumption that beliefs have an impact on the decisions that individuals make (e.g., Bandura, 1986; Dewey, 1930). Early research on teacher beliefs was broad and needed to be narrowed down to studies on educational beliefs about areas such as teacher efficacy, the nature or knowledge (epistemological beliefs), causes of teachers' or students' performance (attributions, locus of control, motivation, writing apprehension, math anxiety), as well as educational beliefs about specific subjects. Studies on beliefs did appear, but beliefs disguised themselves under different names such as attitudes, values, judgments, axioms, opinions (Pajares, 1992). The real confusion, according to Clandinin and Connelly (1987), lay in the distinction between beliefs and knowledge as it is difficult to pinpoint where beliefs and knowledge starts.

Distinguishing Beliefs and Knowledge

Four characteristics of beliefs identified by Nespor (1987) are: existential presumption; alternativity; affective and evaluative loading; and episodic structure. Existential presumptions are unarguable personal truths. Deeply personal rather than universal, these can be formed by chance, an intense experience, or a sequence of events, and they include beliefs about what oneself and others are like. Alternativity is about creating an ideal, or alternative situation based on previous experiences that may be different from reality. Even if these alternative options are not possible to put into operation, they would exist in a teacher's belief system and serve as a guide while setting goals. A teacher's knowledge base would help them realize their goals. Affective and evaluative beliefs are about the feelings we add to actions and function

independently from knowledge. According to Nespor (1987), belief systems may rely more heavily on the affective and evaluative components than on the knowledge system.

The fourth characteristic identified by Nespor places beliefs in episodic memory, based on experience or cultural sources of knowledge transmission, i.e., folklore. Beliefs stem from previous experiences that shape the interpretation and understanding of subsequent events. Knowledge, on the other hand, is semantically stored. Goodman (1988) found teachers to be under the influence of guiding images from past experiences that bring about intuitive screens through which new information is filtered. Like Goodman, Eraut (1985) concludes that unsystematic personal experiences, i.e., photographic images stored in long term memory, play an important role in the process of creating and recreating knowledge. Detailed episodic memory from various sources such as past teachers, literature or the media, inspires teachers in their career and serves as a template in their own teaching practices (Slegers & Klechtermans, 1999, in Day et al., 2006).

In a similar vein, while knowledge is a cognitive component and is schematically organized, beliefs possess elements of evaluation and judgment, according to Nisbett and Ross (1980). Belief is viewed as knowledge of a sort. In other words, perception is influenced by schemata, constructs, information, beliefs, i.e., a generic knowledge structure. However, this structure is unreliable and subjective as beliefs influence how individuals make sense of the world, even their cognitive knowledge (Nisbett & Ross, 1980). Ernest (1989) suggested that knowledge is the cognitive outcome of thought, and belief the affective, adding that beliefs contain some significant elements of the cognitive component. Knowledge is purer than belief and closer to the truth or falsity of a thing, but still requires a

judgment or evaluation of what the truth is, according to Pajares (1992), indicating that knowledge and beliefs are interwoven and affect each other, making it difficult to distinguish beliefs from knowledge.

In discussing the difference between beliefs and knowledge systems, Nespor (1987) argues that, unlike knowledge systems, belief systems do not require general or group concurrence regarding their validity or appropriateness, nor do individual beliefs require internal consistency. Therefore, their relevance to reality disregards logic. This suggests belief systems are by their nature open to question, less likely to change and less dynamic compared to knowledge systems. If there is a change in beliefs, Nespor claims, it is not due to argument or reason but more a result of 'gestalt shift', viz. being able to see that there are other possibilities which are at least as good as the one the person is believing in. So, although knowledge systems are receptive to evaluation and critical examination, better defined and receptive to reason, beliefs are far more influential than knowledge in determining how individuals organize and depict tasks and problems; that is, beliefs are stronger predictors of behavior.

Teacher Knowledge and Belief Systems

Ernst (1989), examining teachers with similar knowledge and differing classroom practice, concluded that the powerful effect of beliefs is more helpful in understanding and predicting how teachers make decisions, despite their similar knowledge. Likewise, Brown and Cooney (1982) concluded that there is a washout effect inherent in teachers' knowledge which is based on their beliefs. That is, beliefs have an impact on what knowledge is used and what, as a result, decays because it is not in agreement with their beliefs system. Thus, beliefs are influential in selecting the source of knowledge and constructing knowledge, as well as what knowledge to

make active use of and what to let wash out. Teachers have the tendency to fall back to the behavior of teachers they observed in the past (Lortie, 2002; Nespor, 1987), particularly when teachers feel uncertain about how to implement learning objectives in class. When teachers encounter such uncertain situations, they make use of their episodic core of beliefs, with the inherent problems and inconsistencies that these bring (Nespor, 1987). In other words, teachers can appear incapable of using appropriate knowledge structures and cognitive strategies (Eraut, 1985; Lortie, 2002). This might mean that, for example, a change in teachers' beliefs will not necessarily occur due to the training and new knowledge on a formal in-service training course.

In contrast, researchers such as Roehler et al. (1988) state that knowledge structures focus on the cognitive structure of teaching because it is the cognitive structures that get "at the heart of the 'thought' in the thought-to practice" (p. 164). As the evolving nature of knowledge structures is more accurate in comprehending the "fluid nature of teacher thought in action" (p. 164), knowledge takes precedence. They argue that, unlike beliefs, knowledge is fluid and develops when new experiences are processed and integrated into existing schemata. Knowledge is categorized by Anderson (1983) as declarative knowledge, i.e., 'what', and procedural knowledge, i.e., 'how'. Teachers may have declarative knowledge but not know how to implement it, and vice versa.

The above perspective on knowledge in which it is integrated cognitively into schemata in response to a rationale process of thought in action, suggests a dichotomy between beliefs and knowledge in which the latter is able to operate independently of beliefs. Paris et al. (1983) introduced conditional knowledge as a third type of knowledge which involves when, why and under what conditions

declarative and procedural knowledge are used. This type of knowledge is supported by Calderhead and Robson (1991) where pre-service teachers used episodic images as examples but did not have the knowledge to question or adapt them when it came to implement these in their classes. Therefore, declarative and procedural knowledge might still not be enough in shaping classroom action. Conditional knowledge based on episodic memory might take precedence and shape responses in practice.

On the other hand, Pajares (1992) argues that beliefs form the basis of these three knowledge categories. Accumulation of declarative knowledge requires belief in the authority of the source of knowledge, and in the teachers' own logic or senses. Procedural knowledge requires engagement in a series of judgments, based on teacher beliefs. This is supported by Lewis (1990) who argues that the origin of all knowledge is rooted in beliefs, and by choosing that way of knowing, individuals choose values. Lewis asserts that beliefs and knowledge are synonymous; even the most observable, empirical, simple thing that people know will demonstrate evaluative judgment, i.e., a belief.

However, the cognitive process in acquiring knowledge and developing supporting beliefs may not be the same, according to Pajares (1992). Dewey (1930) depicts beliefs as the third meaning of thought. For him belief is important as "it covers all the matters of which we have no sure knowledge and yet which are sufficiently confident to act upon and also the matters that we now accept as certainly true, as knowledge, but which nevertheless may be questioned in the future" (p. 6). No matter how people form the terms in their minds, Pintrich (1990) argues "knowledge and beliefs ... influence a wide variety of cognitive processes including memory, comprehension, deduction and induction, problem representation, and problem solution" (p. 836). Woods (1996) emphasizes the notion of beliefs,

assumptions, and knowledge (BAK). Assumptions, in his view, are temporary acceptance of facts by individuals, which have not been demonstrated but are taken as the truth for the time being. Woods considers BAK as “interrelated prepositions, in which certain propositions presuppose others” (p. 196).

The Creation of Beliefs

From the theorists’ point of view, beliefs are created while going through a process of enculturation and social construction. Enculturation entails accidental learning processes in life, which include assimilation by individuals as a result of observation of, participation in, and imitation of the existing cultural elements in their surroundings (Pajares, 1992). Education, on the other hand, is the formal or informal purposeful learning which aims to bring behavior in line with cultural expectations. During these learning processes, individuals’ beliefs are created, nourished and generally remain indefinitely in existence unless they are intentionally challenged. It is this early encountered raw material that influences how individuals interpret the new information (Lasley, 1980).

Thus, altering beliefs that entered one’s beliefs system at an earlier stage appears more difficult. Earlier beliefs affect the processing of new information and, as a result, new beliefs are most vulnerable. With time and use, newly acquired beliefs can become robust but, even after clear scientific explanations, they might be based on inaccurate or incomplete knowledge (Munby, 1982). Similarly, Kennedy (1997) asserts pre-service teachers bring with them robust beliefs about what a good teacher is. When these beliefs are challenged, they prefer to dismiss these challenges as too theoretical and non-pragmatic. Nisbett and Ross (1980) discuss this perseverance phenomena where individuals use cognitive tricks to make conflicting knowledge support existing beliefs, a process which is supported not only by the

emotional qualities of beliefs, but also cognitive and information-processing principles. Prior beliefs of individuals affect not only what they recall but also how they recall it. Individuals may distort recalled information to sustain existing beliefs by building casual explanations surrounding their beliefs.

Rokeach (1968) outlined four assumptions for the connectedness of beliefs that determine an individual's priorities for the perceived importance of beliefs. (1) Existential beliefs are related to individuals' identity, and how these beliefs fit into their world. Existential beliefs which are more directly linked to individual identities are more connected than beliefs held in conjunction with others. (2) Derived beliefs are learnt from others. Underived beliefs, which are learnt from direct exposure to a situation, have more functional connections because connected to an individuals' sense of self. (3) Beliefs about matters of taste are random, less central, and have fewer connections to the other beliefs. (4) Attitudes and values, which are part of a belief network, can be approached as central or peripheral (Rokeach, 1968). For example, beliefs may have "psychological strength" (Green, 1971, p. 47). Such beliefs have a high degree of connectedness; thus, they are more strongly held or more central. Likewise, if individuals think that certain beliefs are also shared by others, they hold them more centrally. Nevertheless, if some beliefs are derived from an affiliation with a group, they can be less connected and, therefore, have a more peripheral disposition.

In their study on conceptual change in college students, Posner et al. (1982) talk about conceptual ecology held by individuals, which is composed of anomalies, analogies and metaphors, epistemological commitments, metaphysical beliefs and concepts, and other knowledge. New information is either assimilated into the existing beliefs ecology, or if not possible, new information is accommodated by

replacing or reorganizing an old belief. Although both cases result in change in beliefs, accommodation is more difficult especially when the metaphysical and epistemological beliefs of individuals are deeper rooted. Thus, in order for a change in beliefs to take place, individuals must be dissatisfied with their existing beliefs, the new beliefs must appear clear and plausible and must be consistent with other beliefs in ecology (Posner et al., 1982). In other words, they must have functional connections to other beliefs in the structure (Rokeach, 1968).

Posner et al. (1982) concluded that students rejected new information believing it irrelevant or looked for ways to assimilate the new information into their existing beliefs structure rather than accommodating it. To accommodate new information, students need to realize that new information represents an anomaly, to accept that the new information should be compared with the existing belief, to be willing to reduce the inconsistencies among the beliefs, and, finally, to accept that it is not possible to assimilate the new information to existing beliefs. However, realizing is not enough, the newly accommodated beliefs must be tested and approved otherwise they may still be discarded.

Professed, Enacted and Implicit Beliefs

The broad distinction between knowledge and beliefs is in the form of things we just believe, and things we more than believe, which we call knowledge (Leatham, 2006). Thus, beliefs and knowledge are complementary. Rokeach (1968) defined beliefs as “any simple proposition, conscious or unconscious, inferred from what a person says or does, capable of being preceded by the phrase, ‘I believe that...’” (p. 113). Accordingly, beliefs may be descriptive (e.g., it is time for physics class), evaluative (e.g., I don’t enjoy teaching physics), or prescriptive (e.g., I must go in before the bell rings, or my students will turn the lab into mess); and beliefs

may hold elements of all these three characteristics. In Rokeach's view, knowledge is a component of belief because beliefs have a cognitive component which represents knowledge, an affective component which can arouse emotion, and a behavioral component which is activated when an action is needed. Clusters of beliefs are arranged around a situation or items and give people the tendency to behave in a certain way; in other words, beliefs become an attitude. Likewise, beliefs can become values because they encompass the evaluative, comparative, and judgmental functions of beliefs, which make people act. Thus, an individual's belief system is formed by beliefs, attitudes and values.

However, the above does not imply that individuals are able to communicate beliefs or are even aware of their existing beliefs. It is not possible to directly observe or measure beliefs; rather, they can be inferred from what people say, intend or from their actions (Pajares, 1992). Rokeach (1968) points to the difficulty in bringing out actual beliefs as individuals may be unable or unwilling to accurately show their beliefs. Simply asking individuals what their beliefs are or whether their existing beliefs have changed may not be reliable. In other words, getting at actual beliefs involves making inferences about the underlying factors that affect an individual's way of thinking and feeling. As mentioned earlier, the psychological strength of a belief depends on how such a belief is related to other beliefs because beliefs naturally go where they make the most sense (Leatham, 2006). As individuals are generally less aware of the sense-making process, they tend to find it difficult to articulate their beliefs or even evaluate the psychological strength of these beliefs. The strength of beliefs can be inferred from how they accord with the rest of the belief system; hence the need for multiple data sources and contexts when researching beliefs.

Beliefs may be clustered in isolation from other beliefs (Green, 1971). An external observer may perceive beliefs as inconsistent. However, the holder of the beliefs may not perceive them as contradictory. Beliefs displayed by people may vary according to instances, which suggests that there are exceptions to rules, but individuals may not necessarily be aware of these exceptional situations related to their beliefs (Skott, 2001). Whenever contradictory beliefs come together, the individual holding these beliefs manages to resolve the conflict, viz. allays tensions within the belief system and as a result makes the system reasonable. This resolution may not seem logical, rational, justifiable or credible to the observer and, as a result, it may not be easy to understand the combination of these clusters (Leatham, 2006).

The challenge in such cases is to look beyond the beliefs assumed to have led to an action and infer what beliefs took priority in that particular case (Leatham, 2006). For example, teacher actions may not always confirm a researcher's inferences. Even when a teacher's actions appear in line with the researchers' inferences, there may be no clear evidence of what belief(s) the teacher is acting on. As mentioned earlier, certain psychologically stronger beliefs are more influential in how people act in certain circumstances. Such prioritized beliefs are lenses through which teachers look at their classroom practice (Rimm-Kaufman, 2006).

Thus, beliefs impact action (Rokeach, 1968), but they may not be apparent to the person holding the beliefs. In other words, beliefs may be tacit, or implicit – the believer may not be aware of the existence of these beliefs (Buzeika, 1996; Harrison & Lakin, 2018). The beliefs may not be articulated or vocalized by the holder for various reasons, but they may have a strong base in a person's identity and be resistant to accommodation. By the same token, a person may profess beliefs but, logically, if implicit beliefs impact on action without the awareness of the person

expressing beliefs, then an incongruity might exist between beliefs which are professed and those which are implicit and determiners of action. Therefore, enacted beliefs might not reflect professed beliefs but may be a function of those which are implicitly held. Again, from the above discussion, if implicit beliefs are constructed from a process of enculturation over time, as seems to be the case, then traditional forms of inculcation to knowledge as a means of changing behavior, such as formal courses, may not succeed.

Rationale for Researching Epistemological Beliefs

Understanding the impact of beliefs during an initial in-service program has relevance not only for the institution in which the research takes place, an English language preparatory program at a foundation university in Ankara, Turkey, but could also provide insights in the broader context to deal with beliefs which might not reflect best practice. According to the TEPAV/British Council 2013 report, English language teachers working in Turkish state schools are intent on implementing communicative language teaching methods in their classes, but they find it difficult to do so “due to lack of ‘how to’ apply a communicative approach in the Turkish classroom” (p. 72). They need guidance and support in how to implement such methods. As a result, the Turkish Ministry of National Education (MONE) has acknowledged the importance of providing Continuous Professional Development (CPD) to English language teachers working in state schools. The report suggests that offering nationwide courses such as the Cambridge English TKT/ CELTA/ ICALT/ DELTA courses would enable these teachers to use more contemporary methods and contribute to the general improvement of English language teaching standards (TEPAV/British Council, 2013).

However, although this represents a bold initiative in supporting needy teachers in situ, if course leaders are not aware of the power of teachers' previous life experience and related beliefs about learning in shaping classroom performance, then the approach to teacher professional learning adopted may be less effective than it might otherwise be. These in-service programs might provide teachers with methods courses and teaching strategies they had already learned in their pre-service education courses, which might not meet their actual needs. However, focusing on how their epistemological beliefs shape practice and developing responsive approaches would help tackle associated weaknesses in classroom practice, and might prove more beneficial in the long term.

Likewise, the number of English as a medium of instruction (EMI) universities with English preparatory programs is increasing. According to the most recent figures released by the Turkish Higher Education Council in 2018-2019 academic year, there are 207 universities in Turkey, 129 state institutions, 73 foundation universities, and five vocational foundation universities. Although no official data are available, it is predicted (Erkoç, 2020) that, for a substantial proportion of courses taught in almost all foundation universities and about half of state universities, the medium of instruction is in English, and that up to 30%, 50%, or even 100% of courses at these universities are offered in English, hence the need for English preparatory programs.

Students coming out of Turkish high schools, given the nature of the Turkish university entrance exam which does not test English, generally arrive in the above universities with insufficient English to pursue academic studies in English. Therefore, a substantial cohort of English language teachers is needed to bring students' English language skills to a level of competence required prior to their

starting their EMI course proper. Some of these universities have recognized the need to invest in induction programs for new teachers, part of which may be an initial in-service course to confront and cater for the diversity of backgrounds and personal understandings as to what learning and learning a language entails in these contexts. Again, gauging beliefs about how teachers construct learning, their own and that of their students, given the findings in the literature about the power of epistemological beliefs derived from early learning, life experience, and other factors, could provide valuable pointers to increasing the success of targeted outcomes in induction courses and potentially contribute to novice or relatively inexperienced teachers' longevity in the profession.

Problem

A challenge for institutions and in-service teacher educators is to ensure that new teachers' classroom performance meets the requirements of the context in which they are to work. The 2005 Organization for Economic Co-operation and Development (OECD) report entitled *Teachers Matter* suggests that beginning teachers should be provided with structured induction programs in schools, run by trained mentor teachers with a reduced teaching load, and that there should be close partnerships with teacher education institutions.

However, inducting newly hired teachers through more of the same type of course that they have encountered in their early training may not have the desired effect of helping teachers adapt to the new context and to teach in a manner which reflects the institutional culture and targeted teaching methods. This is particularly true if the core beliefs of teachers, developed earlier in their lives, dominate their way of thinking in the new context, shaping their classroom practice to the detriment of best practice. For the current study, best practice is construed as following a

constructivist approach to teaching and learning, supported by professional learning on the formal induction program.

Not only may earlier beliefs about knowledge and learning affect the openness to new learning and ways of doing, and thus hamper possible assimilation or accommodation of targeted practice, but deeply seated core beliefs may persist long after an induction program has finished (Penner-Williams et al., 2019; Tanase & Wang, 2010), and negate the long-term impact of training. Teachers may profess to learning on an induction program, without accommodating it into core beliefs system, and they may simply revert to practice based on previous beliefs once the course pressure has been lifted (Elby & Hammer, 2010).

The problem, then, is how to establish ground rules for the transition of early career teachers to a new teaching context by investigating the source of teacher core beliefs, their effect on teaching classroom practice, and the facility with which such beliefs might need to change to reflect best practice. Researching this issue is crucial in order to develop a structured and effective way of providing an in-service training curriculum which is appropriate to the needs of new or early entrants to the professional workplace.

Purpose

In this study, therefore, I was interested in researching, as a teacher educator, the effect of professional learning, as part of a formal in-service induction program, on teachers' personal epistemological beliefs and their practice associated with those beliefs. The target cohort consisted of mainly novice national and international English language teachers in an English language preparatory program in an English-medium Turkish university, as outlined earlier. I wanted to establish, as best I could, what the epistemological beliefs of the new cohort of teachers were on arrival in the

new workplace. In other words, I was interested in beliefs formed prior to their employment, related to knowledge and knowing, learning in general, and language learning in particular.

Specifically, I wished to explore the relationship of these initial personal epistemological beliefs with their teaching during the course and beyond, whether these beliefs and related classroom practices were affected by passage through the formal in-service induction program in this context; and, if so, I wished to ascertain the manner in which they were affected and the processes that underscored the assimilation or accommodation of any new practice. Furthermore, I wished to focus on the longevity or susceptibility to modification of initial beliefs, and the sustainability beyond the induction program of any changed beliefs and practices. As the course took place within the context of a large language teaching program, I was also interested in attending to the potential impact of the teaching context on teachers' beliefs and adoption of new practices.

Taking my cue from the literature discussed above, I sought to gauge the extent to which implicit beliefs and their enactment were evident in teaching over time, and to what extent any changed beliefs were adopted; in other words, were they implicit or simply professed. I realized I would need to adopt a close relationship with teachers to gain insights into their previous experiences and be able to interpret implicit beliefs. This inevitably meant use of the interpretative paradigm, which would necessitate a reduced number of informants in order for me to be able to develop meaningful insights within the confines of this study.

A clear purpose to the research, then, was to undertake an in-depth case-study incorporating a limited number of teachers from my target cohort, with a view to following closely the unfolding of their beliefs and classroom enactment over time.

This, again inevitably, entailed the purposive selection of a smaller number of study participants who would represent, in an appropriate manner, the spread of beliefs within the larger group.

In order to achieve the purposes as outlined, I adopted the research questions given in the section below.

Research Questions

This study addressed the following main question and related sub-questions:

Main Question

How does transitional learning on a formal in-service training course affect a sample of newly recruited international and national teachers' personal epistemology about learning in general, and language learning in particular?

Sub-questions:

1. What are the general and language learning related personal epistemologies of early career English language teachers on a structured induction course when in a new workplace context?
2. How do these personal beliefs relate to their performance in the classroom as they transit the course?
3. How do their personal belief-related perceptions change over time in the new context, if at all?
4. How do these perceived changes in beliefs, as a result of transitional learning experiences, affect participant teachers' classroom practice in the new context?
5. What distinctions arise, if any, in responses of teachers from different cultural backgrounds and prior professional learning experiences?

Significance

The study is significant for several reasons: Firstly, this study uses an interpretative methodology to establish informants' implicit epistemological beliefs on entry to the work context, through a research process borrowed from classical hermeneutics. Enacted beliefs are then established independently over time in the same context through classroom observation. This is a significant departure from many studies in the literature, which, for example, document pre-service teachers' epistemological beliefs using a survey, then with a follow-up survey in their in-service contexts test for differences in beliefs and practice. Such methods are based on teachers' self-reporting, raising issues of trustworthiness and credibility. The methods used here avoid this potential threat.

Secondly, the research uses a previously established, statistically validated, model for categorizing epistemological beliefs to compare beliefs. Beliefs are categorized as either complex or naïve to reflect a teacher's adoption of the constructivist approach targeted on the in-service course. This approach is significant because it permits changes to be monitored over the in-service course using the descriptive categories of the model. To the best of my knowledge, such an approach has not been reported in the literature.

Thirdly, the study is significant in terms of its time scale which covers a period of 18 months, six months of which are after the course has finished. This allows for beliefs to be studied longitudinally in the same context and gives a sense of whether training endures after the end of a course. Previous research into epistemological beliefs has pointed out the need to follow beliefs and enactment over time, as they are prone to change for many different reasons.

Fourthly, the study is significant as it takes place within a single context. Generally, time scales associated with pre-service courses, and the difficulty of following teachers up in new teaching locations, make focusing in on practical teaching changes problematic. The similarity of the context for my study allows for meaningful insights related to contextual factors and their impact on beliefs and their enactment, an important thread in research on in-service beliefs.

Fifthly, this study is significant in that the model used to categorize beliefs shows beliefs are multi-dimensional, and that, potentially, a range of beliefs may be held by a single teacher, constructivist for some beliefs, or empiricist for others. One size fits all in-service professional learning courses may not provide focused help for teachers with variegated backgrounds. The study points to a need for more effective, differentiated professional learning interventions centered around knowledge of teacher epistemologies

Finally, literature suggests that beliefs may differ according to subject areas. This study is significant in its focus on English language teachers' epistemological beliefs, which have not received as much attention in the literature as in other areas such as science or mathematics. The study will allow researchers to compare outcomes with other subject areas to see whether substantial differences exist in beliefs systems and their enactment under the model adopted.

Definition of Key Terms

Some of the key terms used in this thesis are defined as follows:

Accommodation: This refers to change in the structure of knowledge in order to fit new information (Galotti, 2004; Posner et al., 1982).

Assimilation: This concept refers to “the integration of external elements into evolving or completed structures” (Piaget, 1970, 1988) of knowledge where schema already exists.

Complex Beliefs: The rationale for this concept draws on constructivist theory. Beliefs are perceived as evolving as a result of interaction with the environment.

Constructivist: This perspective has its roots in Piagetian theory and the belief is that people actively construct knowledge by interpreting their experiences. Knowledge is created by interacting, and learning is seen as a reflective and interactive process (Cheng et al., 2009).

Core Beliefs: They are part of individuals’ implicit beliefs but are more deeply rooted impacting other implicit beliefs plus their enactment, acceptance or rejection of incoming new information. They also affect a person’s interpretation of the newly encountered knowledge. They are clusters of beliefs arranged around a situation or items and give people the tendency to behave in a certain way (Rockeach, 1968).

Different cultural background: People who come from different societies with their own set of ideas, beliefs, and ways of behaving and hold different type of career, training, or education. In this study it not only encapsulates international teachers whose first language is English, but also teachers who are speakers of English as a second language and who originate from culturally diverse areas of Turkey.

Enacted Beliefs: This refers to behavior and attitude displayed when teachers are in action. The underlying force of enacted beliefs may be either individuals’ implicit or professed beliefs.

Episodic Memory: In this study it represents the exemplars in individuals' memory based on their life experiences and forms individuals' implicit beliefs. It helps with the sense making process of new information.

Epistemological beliefs: Epistemology is the study of beliefs about the origin and acquisition of knowledge (Hofer, 2004). In this study, epistemological beliefs refer to collective beliefs about the nature and acquisition of knowledge held by teachers.

Implicit Beliefs: These beliefs are formed mostly through personal experiences, usually at earlier stages in life. Individuals may not be aware of the existence of these beliefs but may influence their actions without their awareness (Harrison & Lakin, 2018). It is perceived as tacit knowledge formed through experience.

In-service teacher educator: A member of the teaching body in a school who teaches and therefore knows the context, who works closely with teachers to improve their teaching skills, who gives workshops, and who carries out lesson observation cycles and give feedback on teaching observed.

Institutional context: Conventionalized ways in which particular organizational ideologies or philosophies are interpreted by teachers. The institutional context forms the cognitive framework for thinking about their specific teaching in the classes and the interaction among the agents in the context, i.e., institutional culture. (Freeman & Richards, 1996)

Multidimensional theory: Approaches personal epistemology as both desegregate and aggregate. If one dimension of belief develops, the other dimensions of beliefs may or may not develop (Duell & Schommer-Aikins, 2001).

Naïve Beliefs: This type of beliefs reflects aspects of traditional approaches to learning. Beliefs are perceived as fixed and passed down by an authority.

Professed Beliefs: Harrison & Lakin (2018) define it as “products of introspection which are accessible and reportable by the holder” (p. 55). In addition, in this study it is also considered as knowledge coming from formal authority such as a formal course or books. These beliefs may or may not be in line with individuals’ implicit beliefs.

Teacher cognition: Teachers’ views of practice, often labelled as their personal knowledge (Freeman & Richards, 1996).

Teacher induction: Induction is when somebody is formally introduced into a new job or organization, especially through a special ceremony. In this study, teacher induction refers to introducing early career teachers to the profession and/or the institutional context through participation on a formal in-service course over a period of a year. The aim is to familiarize the newly recruited teachers to the methodology and teaching philosophy in place.

Teacher socialization: How individual teachers are shaped by the institutions with which they have contact (Freeman & Richards, 1996).

Technical rationality: This is related to teacher knowledge; it is believed that there are established and universal solutions to problems, which can be applied in all contexts. Such knowledge is learnt at universities (Philpott, 2014).

Traditional: Teacher is seen as a transmitter of knowledge where knowledge acquisition is a one-way transmission process from teacher to student, encapsulating very limited interaction. Possesses elements of behavioristic learning (Kember, 1997).

Transition: The process or a period of changing from one state or condition to another. In this study, it refers to the process of changing from being a university student to the role of a teacher and adapting to a school context or being an experienced teacher and adapting to a new working context and, in certain cases, a new national context.

Unidimensional theory: Approaches personal epistemology as an aggregate. If one dimension of belief such as 'knowledge is certain' develops, the other dimensions such as 'learning is quick', 'knowledge is certain' will also develop (Duell & Schommer-Aikins, 2001).

CHAPTER 2: REVIEW OF RELATED LITERATURE

Introduction

This study examines the changes in teachers' personal epistemology and instructional practice during transition to a new teaching context while engaged on a formal training course. Chapter 1 examined beliefs and their definition, primarily the nature of beliefs, distinguishing between beliefs and knowledge, and clarifying distinctions between professed, enacted and implicit beliefs. Chapter 2 continues with a review of the literature on teacher beliefs, mainly teachers' thought processes. It then turns to epistemological beliefs in educational contexts, after which it delves into literature on professional learning. Finally, as a key focus of the study is whether changes in beliefs influence classroom methods and professional practice, the review looks at in-service teacher education.

The Nature of Beliefs

The Impact of Teachers' Early Life Experiences

Chan and Elliott (2008) report on the existence of a clear relationship between "teachers' epistemological beliefs and their conceptions about teaching and learning, subsequently leading to different approaches and strategies adopted in classroom teaching" (p. 824). Teachers' beliefs about knowledge and knowing play a role in shaping teachers' classroom practice, and thus have a direct effect on students' learning in the classroom. In order for teacher educators working on an initial in-service professional learning induction program to provide effective support during teacher transitions to the new institutional culture, a first step might be the

identification of background life experiences from episodic memory that shaped teachers' reasoning as to what knowledge and knowing are, and language learning and teaching is (Pajares, 1992). Such background information would provide a basis for examining the epistemological beliefs of teachers new to a context, and how far their beliefs differed from institutional expectations expressed through the curriculum of an induction program.

Thus, studying a teacher's general epistemological beliefs about knowledge and knowing, as well as more specific beliefs about teaching and learning, could provide valuable insights into the influence of epistemological beliefs of teachers new to a teaching context, the profession, or new to a country. Researching epistemological beliefs may also enlighten us as to the manner in which teachers' beliefs affect their classroom teaching, if at all, and whether they reflect the approach to teaching and learning which is promoted by the institution. Teachers' approach to teaching may not always reflect institutional norms, for whatever reason, but may reflect their epistemological beliefs. These practices are generally based on early life experiences of how teaching should be carried out. Knowing how susceptible to change such practices are would provide data and perspectives which teacher educators could benefit from to facilitate effective practice on induction courses such as the formal one in the study here.

Teacher Beliefs and Classroom Practice

Chapter 1 emphasized the importance of previous experience in forming beliefs, some of which may be articulated, others of which may be tacit or implicit. Verjovsky and Waldegg (2005) report on two opposing views on teacher beliefs, one context-dependent, the other context independent. According to the former view, teachers' beliefs may change according to specific situations such as content to be

taught, physical resources available and student profile. Teachers' enacted beliefs may also vary depending on the characteristics of students (Breen et al., 2002; Hoyles, 1992; Tudor, 2001). According to Breen et al. (2002), "pedagogical principles are reflexive in both shaping what the teacher does whilst being responsive to what teacher observes about the learners" (p. 473). For them, situational demands, constraints, and specific social relationships can deter teachers from enacting their beliefs. The study by Zheng (2015) drew similar conclusions with regard to "affective concerns about the learners, pragmatic concerns about lesson plans, and school requirements" (p. 142). Schraw et al. (2011) assert the inconsistency in understanding the relationship between the nature of beliefs and teachers' classroom practices.

The latter context independent view, on the other hand, posits that teachers' beliefs are rather coherent across multiple contexts, i.e., shaped by a larger context beyond their classrooms, suggesting the need for assessing underlying beliefs (Hermans et al., 2008). Thus, teachers hold both specific and general beliefs about a range of topics, but which ones are activated or espoused may depend on the context. These activated beliefs may influence teachers' understanding and classroom behavior (Buehl & Fives, 2009).

Some elements of teachers' beliefs are formed in the context where classroom activity occurs (Alzen & Fishbein, 1980; Osborne, 1998) and their strength can vary according to context (Hoyles, 1992), giving rise to different enacted beliefs (Pajares, 1992). Although teachers may hold strong beliefs about the viability of certain things, such beliefs may shift as a teacher becomes more familiar with elements of a specific context such as the student profile (Fives & Buehl, 2012). Thus, in this scenario, beliefs are not written in stone but may respond to prevalent conditions.

How this response is brought about is a ripe area for investigation, particularly around training and professional learning.

Incongruence between teacher beliefs and practice depends on the role a specific belief plays in teachers' cognition and decision making, and on the figurative distance between the belief and teachers' classroom practice. The potential for a change in beliefs appears to be a function of how interconnected a belief is to other elements of a beliefs system, as well as the novelty of a belief. It is easier to change a new belief compared to those manifested for a longer period (Fives & Buehl, 2012). Even though a belief is professed, other factors may intrude on the enacted practice of a teacher in a classroom. External factors such as expectations of the school may support or deter the enactment of beliefs and contribute to the apparent lack of relation between teachers' beliefs and classroom practice (Cheng et al., 2009; Ham & Dekkers, 2019). Hence, teacher educators and school leaders play a crucial role in the enactment or hindrance of teachers' beliefs (Fives & Buehl, 2012; Nghia, 2017).

Raymond (1997) illustrates a case of inconsistency between beliefs and practice, where teachers interpreted concepts differently from the way they were interpreted in general, including by a teacher educator researcher. Thus, beliefs related to their subject areas may not always be the main source affecting teachers' classroom practices. Similarly, Phipps and Borg (2009) reported that teachers' beliefs regarding teaching grammar were not always reflected in their classroom practice, defined by them as tensions. Tensions were recognized while presenting, practicing or doing oral work when teaching aspects of the target language. They posit that teachers' core beliefs, rather than what they say about teaching and learning, inform classroom practice, which explains the underlying reasons behind

the tensions. Similarly, Zheng (2015) states what teachers say about teaching does not fully represent their true thinking or beliefs. It is the classroom practices that “reveal the implicit and tacit belief” (p. 141). Defined by some as incongruence, mismatch, inconsistency, or discrepancy, this rather reflects a divergence among the different forces which shape the teacher’s response in school contexts (Freeman & Richards, 1993). Beliefs about instruction, learning, and subject matter are generally formed during K-12 years at school (Nuthall, 2005) and seem to form part of the core beliefs of individuals.

Implicit beliefs guide teachers’ classroom behavior and subconsciously filter interpretation of their practice (Fives & Buehl, 2012; Ng & Leicht, 2019). In Nespor’s view (1997), personal reflective practice would not affect implicit beliefs. In other words, implicit beliefs are beyond a teachers’ control. Dewey (1933) asserts that professed beliefs need both intellectual and practical devotion, followed by justification, for beliefs to be continued. These beliefs generally come from formal education, formal in-service education, or expectations from the context in which teachers work. In this case, teachers are explicitly aware of such beliefs, which are espoused, and which they can articulate (Skott, 2001). Professed beliefs related to teaching and learning are often insufficient in providing a model of the belief system impacting on teaching (Kember, 1997).

Common techniques to collect data regarding teachers’ professed beliefs are questionnaires or interview protocols (Five & Buehl, 2012). However, answers may make it difficult to differentiate actual beliefs for different reasons (Rimm-Kaufman et al., 2006). Teachers might lack the terminology to articulate their beliefs (Leatham, 2006), or, as mentioned above, they may not be aware of their beliefs. Examining teachers’ enacted beliefs by analyzing teachers’ classroom behavior,

planned actions, or talk is a means of differentiating professed from implicit beliefs (Assen et al., 2016; Gill & Hoffman, 2009; Penner-Williams et al., 2019). According to Fives and Buehl (2012) enacted beliefs can represent both implicit and explicit beliefs, i.e., professed beliefs, held by teachers, which influence their practice. However, which beliefs will come to the fore would depend on the psychological strength of these beliefs. In other words, the closer to the core beliefs of the teachers, the more likely the beliefs will affect teachers' classroom actions.

According to Leatham (2006) the important point in teacher education is not to impact *what* teachers believe but rather impact *how* they believe it. When making inferences about beliefs that teachers hold, there are certain beliefs desired to be held, and teaching practice to be strongly influenced by these beliefs, which may put the teacher educators on the wrong track (Leatham, 2006). Leatham suggests a Sensible System Framework (SSF) enables teacher educators to adopt a constructivist approach while analyzing teachers' beliefs systems and change in their beliefs systems. The framework portrays teachers as complex and sensible people with a clear rationale for the decisions they make. Teacher educators should create room for teachers to explore their beliefs regarding the subject area, teaching and learning through commonly used teacher education strategies such as analyzing beliefs explicitly, critiquing, demonstrating through examples, and encouraging rigorous discussion, which help teachers acquire the terminology necessary for continuous, meaningful reflection on their own teaching practice.

According to Clark and Yinger (1977) teachers use instructional routines during their interactive decision-making in the classroom; these are routinized mental scripts which teachers are generally reluctant to change once these habits are formed, even when aware that they are not effective. Similarly, Shavelson and Stern (1981)

describe teaching as the implementation of well-established routines. Teachers look for hints by observing learner behaviors so as to reflect on the effectiveness of the well-established routines in the classroom, and whether they need to adopt alternative behaviors in the class. Beliefs here seem to be hard-wired into what teachers do in the classroom through routines, and that teachers change routines in response to reflection on the effectiveness of those routines. This may be suggesting that it is routines and not beliefs, in the case of well-practiced teachers, that shape classroom practice. Routines, like beliefs, may be difficult to change. However, it does not address the issue of how routines are formed. Habits may arise from prior beliefs and be reinforced through practice. Thus, changing habits may imply changing beliefs (Guskey, 2002). If this is the case, then reflection may not be as effective a tool as is expressed by the model.

Clark and Peterson's (1986) review divided teachers' thoughts and beliefs into two subsections: teachers' beliefs about students; and teachers' implicit theories about teaching and learning. The latter was the smallest and most recent area on teacher thinking, whose aim was "to make explicit and visible the frames of reference through which individual teachers perceive and process information" (p. 263). While earlier studies focused on the classroom as a task environment aiming to prescribe what makes a good teacher, Clark and Peterson interpreted teacher actions with reference to socio-psychological factors, which affect teachers in real classroom settings. The thought component in their model relates to the unobservable psychological context of teaching, while the action component represents the observable elements in the classroom. These two components influence and are influenced by each other. Thus, the process of teaching can only be fully understood when these two domains "are examined in relation to one another" (p. 258). Their

meta-analysis on teacher thinking gave three informing categories: teacher planning (pre-active and post-active thoughts); teacher interactive thoughts and decisions; and teacher beliefs. Based on the findings decision-making is an intensive activity occurring every two minutes and mostly related to the learners.

Halkes and Olson (1984) outlined the perspectives on teacher thinking which underpinned ISATT's (International Study Association on Teacher Thinking) work. Looking at teaching from a teacher thinking perspective one is not so much striving for the disclosure of the effective teacher, but for the explanation and understanding of teaching processes as they are.

After all (sic) it's the teacher's subjective school related knowledge which determines for the most part what happens in the classroom; whether the teacher can articulate his/her knowledge or not. Instead of reducing the complexities of teacher-learning situations into a few manageable research variables, one tries to find out how teachers cope with these complexities. The way the complexities and ambiguities of teaching are processed into subjective theories for knowing how to teach in a personal satisfying way might account for actual teaching activities. In short, what's in the 'mind' of teachers could explain classroom processes in one way or another. (Halkes & Olson, 1984, p. 125)

Subjective theories, viz. what is in the mind of the teachers, will affect actual teaching depending on how the complexities and ambiguities are processed and the articulation of knowledge plays a role.

Teacher Cognition

Until the mid-1980's little attention was given to subject matter knowledge while focusing on teacher cognition in teaching (Shulman, 1986). Wilson et al. (1987) looked at sources of teacher knowledge, how teachers acquire, transform and use this knowledge in the classroom. The focus was on how newly graduated teachers transform the subject matter knowledge obtained at college. They concluded that teachers have both practical and theoretical knowledge of subject matter which informs and is informed by their teaching. Seven classifications for teacher knowledge were proposed; subject-matter content knowledge; pedagogical content knowledge; curricular knowledge; general pedagogical knowledge; knowledge of learners and their characteristics; knowledge of educational contexts; and knowledge of educational ends. Among these, pedagogical content knowledge (PCK) was most related to teacher cognition.

PCK deals with how teachers alter their subject matter knowledge in such a way to make teaching and learning possible. It “represents the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instructions” (Shulman, 1987, p. 8). This posits an interplay between altered subject knowledge and teaching and learning and suggests that practice is shaped through cognitive processes. PCK may be subject specific (Borg, 2006), unlike general pedagogical knowledge.

The review on teacher thinking by Clandinin and Connelly (1987) critiqued work on teacher cognition. Firstly, studies did not take into consideration teachers' actions in the classroom and their biographical histories. Secondly, research reviewed was grounded mainly in a cognitive perspective on teacher thinking.

Clandinin and Connelly recognized that a cognitive and affective understanding of the personal practical knowledge of teachers would contribute to a more effective, reasonable comprehension of teaching and learning. Their work on personal practical knowledge, i.e., “knowledge which is experiential, embodied and reconstructed out of the narratives of teacher’s life” (Clandinin & Connelly, 1987, p. 490), made major contributions in improving studies in teacher cognition, stimulated by Elbaz (1981). They recognized the link between thinking and practice in the classroom, as one would explain the other in that there would be an interplay between experience and reconstruction of knowledge.

Calderhead’s (1988) work on teachers’ professional learning focused on understanding the process of learning to teach, which “involves complex cognitive, affective and behavioral changes” (p. 2). Laplante (1997) added that teachers’ perceptions of themselves and their students’ knowledge in a particular area impacted their pedagogical decisions. Schön (1983) and others (Calderhead, 1989; Russell & Munby, 1992) suggested that reflection has an impact on practical teaching. It became crucial to understand the process of reflection, what it involved and how it affected teacher learning (McIntyre et al., 1993). Fenstermacher (1994) considered a reflective orientation in his review of studies on teacher cognition and was interested in understanding what teachers do. He contrasted his findings with early studies on decision making and planning.

Carter (1990) pointed out that the studies on teacher knowledge were lacking insight into how novice teachers learn. In most studies, expert teacher knowledge was used normatively to define what teachers should be capable of doing. Carter clarified the distinction between pedagogical content knowledge and practical knowledge in that the former is grounded in disciplines related to school curriculum

and “the collective wisdom of the profession” (p. 306); the latter is more personal and situated knowledge. A further conclusion from her review study was that the studies up to that time were related to the characteristics of knowledge, i.e., holistic, complex, and personal; and on topics teachers think about, i.e., routines, students, and classroom management. However, there was not enough emphasis on what teachers know or need to know about the classroom, content and pedagogy, or the organization of that knowledge.

The Impact of the Belief System on Teacher Learning – a Model

The literature reviewed so far suggests that beliefs have complex origins, are influential and predict behavior. Core beliefs are formed early and are deeply embedded in an individual’s psychology through a process of cultural transmission. Unlike newly acquired beliefs, earlier acquired core beliefs are less likely to change and act as a filter of sorts. Thus, beliefs tend to continue to exist even when faced with contradictions through, for example, reasoning, schooling, or experience. Individuals may hold onto beliefs based on inaccurate or incomplete knowledge, even after scientifically accurate explanations. Beliefs may also be hidden to the holder but may still shape action. In other words, beliefs affect how knowledge is interpreted. They are instrumental in defining tasks and selecting cognitive tools to organize knowledge and information. However, beliefs can be an unreliable guide in discovering truth. In the case of tension between beliefs and collective knowledge (learnt knowledge), beliefs may be the guiding factor in action, and, although seen as inconsistent from the outside, the individual will see them as logical.

A belief system can adapt to different circumstances, allowing individuals to make sense of situations they encounter. Such changes do not necessarily mean the accommodated beliefs are truer than those previously held, they may still be based

on incomplete knowledge. Some beliefs are less convertible than others depending on their nature and origin. Prior beliefs affect recall and may distort new learning in order to sustain existing beliefs. Therefore, new beliefs are more vulnerable. Change in beliefs happens when there is dissatisfaction with existing beliefs, but the new must be plausible, consistent and be tested before being accommodated.

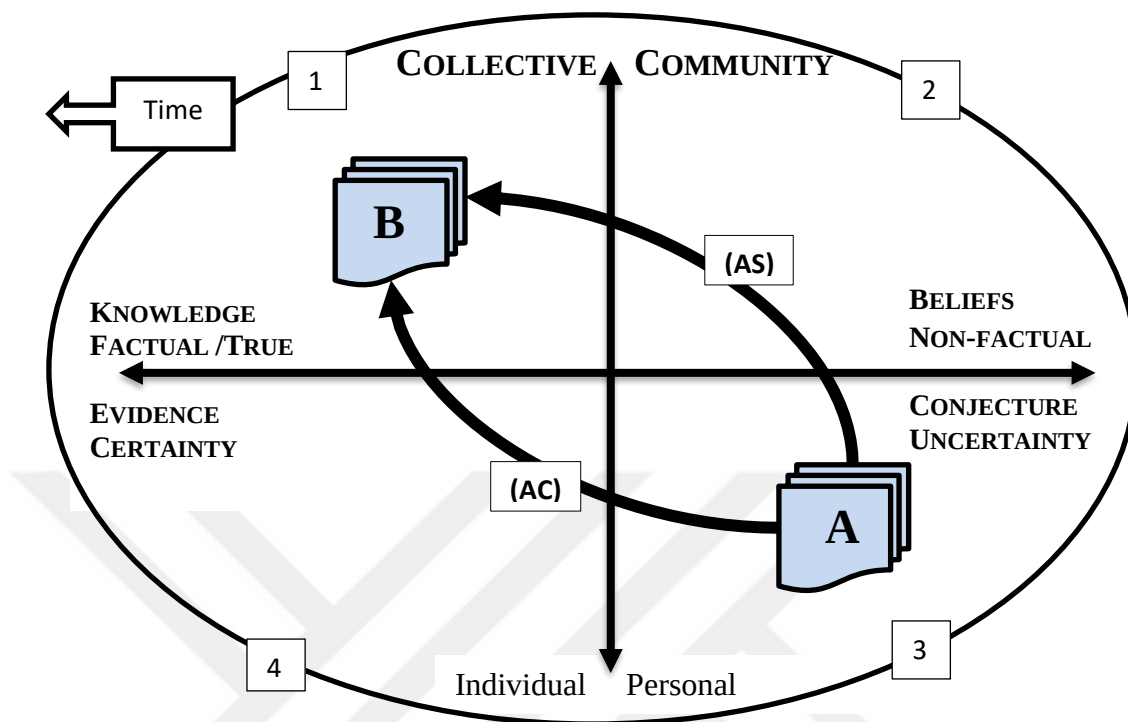
Knowledge, transmitted through books and other forms of collective understandings, is thought to exist independent of individuals, being based on facts established through accumulated evidence accepted by an expert community of knowers, or society at large. However, knowledge and beliefs are closely related to each other, and even the dichotomy between knowledge and belief is questionable as it is suggested that knowledge is interpreted through affective, evaluative, and episodic filters.

Figure 1 represents elements of the literature review so far, which distinguishes knowledge from beliefs through a continuum represented on a horizontal line, with knowledge at one end (left) and beliefs the other (right). This is suggesting that there is no clear dividing line between one and the other. The continuum is crossed by a vertical collective/ community versus personal/ individual dichotomy line. Person A, a hypothetical person in quadrant 3, has individual beliefs which sets them and their beliefs apart from what might be acceptable knowledge to a community of knowers whose beliefs are confirmed by accumulated evidence. Person B is a representative person from the community of knowers.

We might hypothesize that the task of a teacher educator is to engage a teacher in a process of learning which moves them from Quadrant 3, where personal beliefs might hold sway, to Quadrant 1 where practice reflects the collective's knowledge of teaching based on accumulated evidence. The two arrows represent a

Figure 1

A Knowledge-Beliefs Continuum – Collective v. Individual



Note. AS = assimilation; AC = accommodation; quadrants = 1, 2, 3, 4.

process of assimilation (AS), through acceptance of best practice (i.e., passing through Quadrant 2), or accommodation (AC) through a process of reflection, trial, and acceptance (i.e., passing through Quadrant 4). An interesting feature of this model is the time capsule element (top left) represented by the ellipse enclosing the continuum. Knowledge progresses with time therefore it can be further hypothesized that continuous in-service professional development allows professionals to keep up with best practice as it develops.

As discussed earlier, a person may be unwilling or unable to accurately explain their beliefs. Simply asking someone what their beliefs are may be unreliable. Thus, researching beliefs is challenging, requiring triangulation of multiple data sources and contexts. Professed beliefs may need to be compared to enacted beliefs, and inferences about the underlying or episodic factors which affect

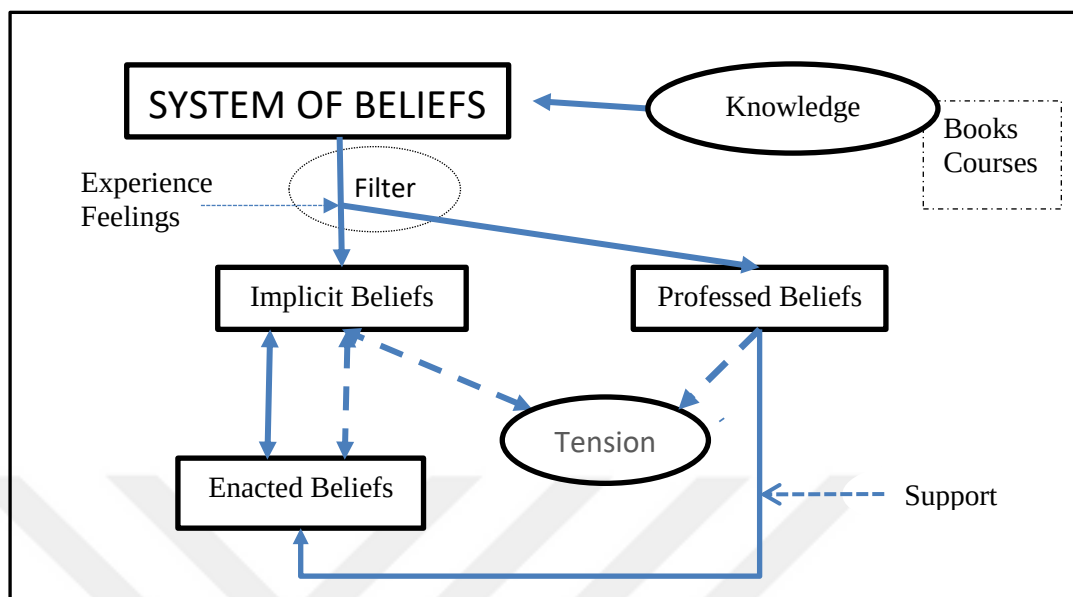
thinking, feelings, and actions may also need to be made. The psychological strength of beliefs is difficult to assess, but it is these which, according to literature, are the most impactful. The inferences made by an observer may not necessarily coincide with an individual's belief clusters.

It seems that beliefs about teaching are formed even before students start college and those beliefs may shape, in turn, how they themselves teach. New knowledge learnt from a training course may form part of an individual's professed beliefs but may not be in line with their implicit beliefs. If the implicit and professed beliefs are not dissimilar, it would not represent a challenge for the new learning to be assimilated into their belief system and to impact on practice, viz. to form part of their enacted beliefs. However, a potential for discord arises if disagreement exists between subconscious, implicit beliefs and what might be advised by an authority in a work context, or form part of the requirements on a formal teacher training course. When tensions arise between the implicit and advised beliefs, the literature suggests, an individual will tend to revert to practice consistent with their implicit beliefs.

The relationship between knowledge, professed beliefs, implicit beliefs, and enacted beliefs is complex and differentiating them represents a challenge. Figure 2 provides an overview based on the literature reviewed so far, attempting to disentangle how different elements of a belief system might interconnect and impact on each other. Knowledge accepted by a community of knowers, possibly from coursebooks or formal courses, transits an individual's system of beliefs and the incoming information is filtered, thus influencing the interpretation of the new knowledge. If it is in line with a teacher's existing implicit beliefs, it could be enacted in the classroom without difficulty, even though a teacher might not have previously known how to enact these beliefs in the classroom. As a result of a

Figure 2

The Interconnectedness of Elements in a Belief System



positive experience, the new knowledge would be assimilated into the implicit beliefs system and the teacher would continue to implement it.

On the other hand, if the incoming new knowledge does not fit in with an individual's previous experiences or feelings, it may be filtered out. However, with external pressure such as from expectations on a formal training course, or a school context, or by sources of authority such as textbooks or course teachers, individuals may profess knowledge without cognitively accepting it into their existing schemata (cf. Tension in Figure 2). In my role as a teacher educator, I have witnessed teachers paying lip service by confidently recalling book knowledge or information discussed during course sessions and presenting it as professed beliefs. Interestingly, teachers themselves seemed unaware of whether the knowledge they were claiming in discussions, oral or written, was part of their implicit or professed belief systems.

Teachers may put into practice their professed beliefs to some extent due to the expectations of an authority. However, when faced with unexpected difficulties

while delivering a lesson or when challenged by learner responses, they will tend to revert to their deeply rooted implicit beliefs because the knowledge being enacted in the classroom does not fit in with their core experiences. When equilibrium is disrupted in this way, teachers start enacting their implicit beliefs, which they feel more confident with. These implicit beliefs are revealed when reflecting on their lessons and justifying their actions. In such instances, teachers generally voice strong opinions about the appropriacy of their actions, claiming that their response in class met needs at that time.

This reflection on enacted beliefs, whether orally or in writing, allows a researcher to detect differences between professed and implicit beliefs. In some rare instances, when a teacher reflects on unexpected difficult situations and their classroom response, they disapprove of their displayed action giving clear reasons, but add that they did not know how to resolve the situation. Such a response indicates to me that what was enacted in the classroom was not the teacher's true implicit beliefs, but because they did not have any examples in their schemata of the way to implement their implicit beliefs, they simply imitated the behaviors of teachers they had had in the past.

Although some teachers may talk eloquently about “community” knowledge, thus implying that they agree with it, they do not project this knowledge into their lesson planning and delivery, perhaps stating it is not suitable for their learners. The new knowledge does not fit with their existing understandings. In-service teacher educators essentially help teachers enact their professed beliefs in the classroom successfully (“Support” in Figure 2). The right type of guidance during individual pre-conferences with the educator, discussing in depth what and how to do things in certain circumstances ensures that professed beliefs are enacted in the classroom.

Positive experiences lead to a change in the teacher's cognition and a reorganization in their schemata. As a result, they accommodate the new experience which then becomes part of their implicit beliefs, thus ensuring a return to an equilibrium state. Accommodating new information into existing core belief systems is a challenging process requiring guidance, discussion and reflection on action which allows teachers to make sense of new information and bring about changes in their thinking and beliefs.

Epistemological Beliefs

Epistemology has long been of interest to philosophers and psychologists; educationalists too have recently focused more on this area. Interest in the development of individuals' conceptions of knowledge and knowing started with the work of Piaget in 1950 (Hofer, 2001) and, according to Chan (2008), attention to epistemological beliefs within educational contexts has been increasing since the late 1990's. Researchers in teacher education have suggested that teachers' behavior and activities in class represent their conceptions about teaching and learning, "which are assumed to be belief driven" (Chan, 2004, p. 817).

Conceptions of teaching and learning are often associated with two learning models (Chan, 2008): a traditional, transmissive model which views the teacher and textbooks as the source of knowledge and students as passive, versus a progressive, constructivist model which emphasizes the creation of active learning environments which promote critical thinking, discovery, and collaboration. A similar perspective is apparent in Scott (2014): on the one side knowledge is seen as immutable, on the other knowledge is seen as changing and developing. He posits three epistemic frameworks: foundationalism, instrumentalism, and pragmatism. Foundationalists think there is one way of knowing and one truth, which are self-evident and do not

require any further justification; the instrumentalist view claims that experiences develop knowledge constructs, skills and dispositions which can be employed by individuals outside of their learning context; pragmatic arguments place knowledge “within networks of meaning that are social in character and historical in origin” (p. 20).

Hofer (2001), in a review of approaches to the studies of personal epistemology, shows how the concept was hypothesized, varying from a systematic progression in development of knowledge and knowing to a system of more or less independent beliefs. This dichotomy is explored in the following two sections.

Epistemology within a Developmental Cognitive Perspective

Much research in the area of personal epistemology claims that individuals move through “a patterned sequence of development in their beliefs about knowledge and knowing” (Hofer, 2001, p. 355). From Perry in 1970 to Kuhn and Weinstock in 2002, five major models with a sequenced trajectory of epistemological development have been identified (Hofer & Pintrich, 1997), connected to cognitive development (Appendix A). The models assert that individuals progress through a specified sequence while developing their understanding about knowledge and knowing. They suggest that knowledge is actively constructed by the knower, knowledge and truth are evolving, and knowing is coordinated with justification.

Early studies focused on students’ epistemological beliefs. Perry (1968) investigated the epistemological beliefs of new Harvard University undergraduate students using questionnaires and in-depth interviews. His findings revealed that students entering college tended to believe that knowledge is simple, certain, and handed down by authority. Perry reported that when students reached a later stage of development, namely senior year college, their epistemological beliefs showed

change in that the majority started to claim knowledge was tentative, complex, and derived from reason and observation. His theory posited that personal epistemology is unidimensional and develops in a fixed progression of stages and described nine different positions along the line of development. The first three positions consist of simple dualistic, right-wrong thinking. Knowledge is perceived as a set of right answers known by authorities, exists in the absolute and, therefore, has “no shades of rightness” (Duell & Schommer-Aitkins, 2001, p. 427). In the next three positions individuals begin to accept multiple stances with accommodation of relativism, viz. conflicting views are equally reasonable (Hofer, 2001), but they can differentiate between an opinion and a well-supported opinion. Individuals start to accept that complexity is normal but still cannot deviate from the belief that there is simple right-wrong knowledge. Accepting multiple stances leads individuals to understand that they must take a stand on issues, too (Duell & Schommer-Aitkins, 2001). In the last three positions individuals make their own commitments within relativism (Hofer, 2001), which can be different from their culture. Perry reports that the movement through these phases is not continuous, in other words there can be pauses in development.

Perry's (1968) scheme had limitations. It failed to accommodate women's views and did not explore the beliefs of people from different age groups, or socio-economic and ethnic backgrounds, which gave rise to the work of Belenky et al. (1986). They encompassed the views of women, articulating the role of source of knowledge and truth as the foundation of women's ways of knowing. Baxter Magolda's (2001) longitudinal study distinguishes four ways of knowing, differentiating male and females' ways of knowing. Whereas males' ways of knowing are posited as impersonal and individualist, females' ways are posited as

personal and inter-individualist as these latter prefer connected ways of knowing in order to gain acceptance by the community. The reflective judgment model of King and Kitchener (2002) describes the development of the process of knowing and reasoning and the manner in which epistemological assumptions influence the thinking and reasoning process. The skills of argument model of Kuhn and Weinstock (2002), on the other hand, explores the epistemological nature of solving ill-structured problems. They take a theory-in-action approach to epistemological thinking, integrated into real-world cognitive activities.

One of the criticisms of developmental models is that most of the research has been carried out in the USA and is, therefore, culture bound (Schommer, 1990). Duell and Schommer (2001) expressed their concerns about this unidimensional approach because it is the researcher who is determining beliefs at each stage. In addition, this view of epistemological development suggests that epistemological development progresses from lower levels to higher levels of epistemological awareness in a moderately predictable way. Therefore, the possibility exists that research following this view may be limiting and missing out on important insights.

Epistemology as a System of Independent Beliefs

An alternative approach to understanding personal epistemology was pioneered by Schommer (1990) who drew on the work of Perry in proposing a model of beliefs about knowing and learning that are independent, rather than stages maturing in synchrony. She suggests that personal epistemology is a belief system made up of several dimensions (Schommer, 1994a). “Beliefs about the nature of knowledge are far too complex to be captured in a single dimension” (Schommer, 1990, p. 498) and she proposed at least five dimensions: structure; certainty; source of knowledge; control of knowledge acquisition; and speed of knowledge

acquisition. These dimensions are more or less independent from each other, and Schommer-Aikins (2002) states it is wrong to assume that beliefs mature in synchrony. For example, an individual may believe that knowledge is mainly complex but at the same time believe knowledge is unchanging (Schommer-Aikins, 2004). While believing in complexity is considered mature, believing in unchanging knowledge is considered simple in this analytical framework. Therefore, Schommer-Aikins (2002) opines it is better to characterize epistemological beliefs as a frequency distribution, rather than dichotomous or continuum. That is, while an individual may hold mainly mature beliefs related to aspects of the belief system, they may still hold some immature beliefs.

An indicator of maturity of beliefs is when knowledge is perceived as tentative and complex, and learning as gradual and controllable (Schommer, 1994a). This maturity assumption is supported by research which shows that students who believe in simple (isolated) knowledge are more likely to comprehend complex text poorly and are less likely to use integrative study strategies (Schommer et al., 1992). This study was replicated by Dunkle et al. in 1993, with additional samples of college students. Results revealed that students' beliefs regarding quick learning, one of the five dimensions hypothesized by Schommer 1990, can predict their grade point average and problem-solving ability in well-structured content. Beliefs related to simple knowledge can provide clues related to learners' study strategies and comprehension of complex text; beliefs in simple and certain knowledge relate to students' problem-solving ability of ill-structured content (Schommer-Aikins, 2002).

The beliefs proposed above are based on previous studies which suggest there is more than one facet to epistemological beliefs. Schommer (1990) derived the notions of structure, certainty, and source of knowledge from Perry's (1968) work

which asserts that many students enter college with the belief that knowledge is certain, simple, and handed down by authority. Dweck and Leggett's (1988) findings on beliefs led to the notion of control of knowledge acquisition. Belief about the speed of knowledge acquisition and the nature of intelligence was derived from Schoenfeld's (1983) study on high school students' work with geometry. Like Dweck and Leggett, Schoenfeld found that students are under the impression that only the talented develop theorems or can be creative in mathematics. Moreover, some students seemed to believe in quick, viz. all-or-none learning. That is, if students spent more than 10-12 minutes working on a problem, they gave up assuming they would never be able to solve it.

Schommer developed an epistemological beliefs questionnaire to research her epistemological belief framework. Under each of the five dimensions (or factors) she developed two or more subsets of items to explore each dimension further. The subsets are: seek single answer, avoid integration, knowledge is certain, avoid ambiguity, do not criticize authority, depend on authority, individuals cannot learn how to learn, ability to learn is innate, success is unrelated to hard work, learning is quick, learn for the first time, and concentrated effort is a waste of time. Within each subset, the items had both positive and negative valence. A detailed interpretation of each of the twelve subsets under the five factors of Schommer's (1990) personal epistemological questionnaire is given in Appendix B.

Schommer developed her 63-item 5-point Likert-scale Epistemological Beliefs Questionnaire (EBI) covering the five hypothesized dimensions and twelve subsets to analyze the relationship between beliefs about knowledge, strategy use, and performance (Duell & Schommer-Aikins, 2001; Hofer & Pintrich, 1997; Schommer, 1990). The questionnaire contained 28 items with negative valence and

35 items with positive valence, posed from a naïve epistemological perspective, Students were asked to rate their degree of agreement for each item from 1 (strongly disagree) to 5 (strongly agree) (Duell & Schommer-Aikins, 2001; Schommer, 1990; Schommer-Aikins, 2002). Although the style of the questionnaire was criticized for varying its style from first person singular to second and third in the belief that it might confuse respondents, Schommer's declared aim was to verify the statements from different perspectives (Schommer-Aikins, 2002).

Once the questionnaire had been completed, follow-up tasks were requested. The students were asked to read a passage on social or physical sciences with, either "multiple theories that need to be integrated or multiple theories whose complexity of interrelations makes an absolute conclusion inappropriate" (Schommer, 1990, p. 499-500), and write a concluding paragraph. Then, students were asked to complete a test related to the content of a passage and rate their confidence in their understanding of the passage to provide predictive validity (Schommer-Aikins, 2002). Table 2 provides a summary of the steps followed for data collection.

As a final step, a survey of students' personal characteristics and home background was administered to investigate the relationship between epistemological beliefs and learner characteristics. This included information about age, gender, years in school, parents' occupation and education. 5-point Likert-scale statements gathered information about students' upbringing, characteristics of family structure (e.g., single parent), adherence to rules (e.g., application of strict rules), and encouragement to independence (e.g., making decisions for oneself). The survey results were intriguing: the students develop sophisticated system of epistemological beliefs depending on the level of their parents' education and parents' expectations of them taking responsibility in the home and for their own learning (Schommer,

1990). This suggests that in studies on personal epistemology it is imperative to obtain detailed information about the research participants' background and family structure.

Table 2

Schommer's Data Collection Procedure

Steps	Data Collection Tool	Content	Purpose
Step 1	Epistemological Beliefs Questionnaire	63-item 5-point Likert-scale questionnaire	To analyze the relationship between beliefs about knowledge, strategy use, and performance
Step 2	Writing a concluding paragraph	Reading a passage on social or physical science	To investigate the ability to integrate multiple theories without making absolute conclusions – an indicator of knowledge is not certain
Step 3	Evaluation of comprehension	Content test and evaluation of own comprehension of the passage read	To provide predictive validity for the regression analysis
Step 4	Demographic questionnaire	5-point Likert-scale statements	To survey students' upbringing, family structure, adherence to rules, encouragement to independence to investigate the relationship with personal epistemological beliefs structure

Note. Adapted from “Effects of beliefs about the nature of knowledge on comprehension,” by M. Schommer, 1990, *Journal of educational psychology*, 82(3), pp. 498-504.

The regression analysis for the questionnaire revealed that the more students believed in quick learning, representing an immature belief, the more likely they were to write over-simplified conclusions, perform poorly on the content test, and show over-confidence in their understanding of the material. Likewise, the more students believed in certain knowledge, the more likely they were to display naïve beliefs by writing definite conclusions for tentative passages (Schommer-Aikins, 2002). On the other hand, “the more courses, the students had completed, the more likely they were to write tentative conclusions” (Schommer, 1990, pp. 502-503). The more exposure students have to knowledge, the more likely they can see that knowledge is changing and therefore tentative.

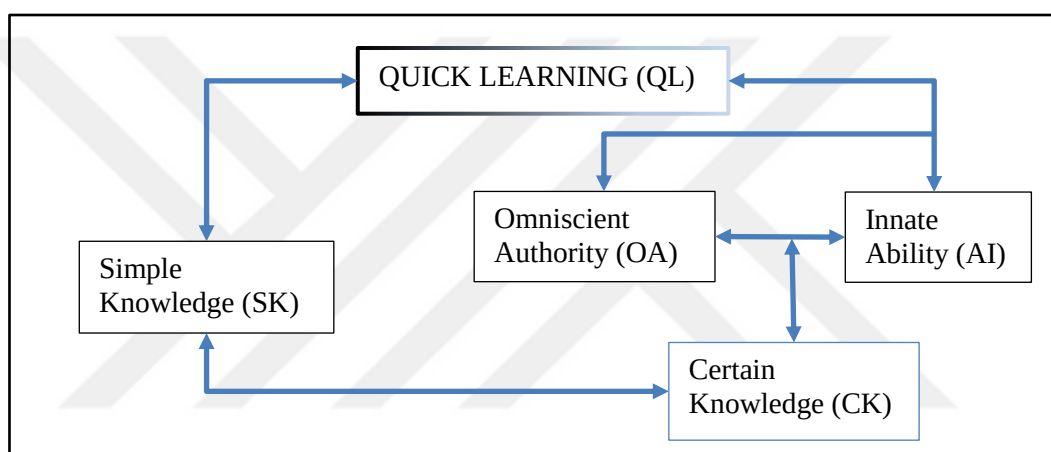
The findings suggest quick learning (QL) is the most influential factor amongst the five suggested by Schommer’s (1990). Her work also reveals that QL may be a predictor of the degree of maturity of an individual’s other three personal epistemological beliefs, viz. Simple Knowledge (SK), Omniscient Authority (OA), and Innate Ability (IA). Furthermore, OA and IA beliefs seem to be related to one another, as well as to Certain Knowledge (CK) (Duell & Schommer-Aikins, 2001; Schommer, 1990; Schommer-Aikins, 2002). In line with Schoenfeld’s findings, Duell and Schommer-Aikins (2001) agree that, if a student believes in the Omniscient Authority of the source of knowledge, they also believe that that authority has the innate ability and is quick in learning (cf. Figure 3).

Looking at teachers’ personal epistemological beliefs, Chan and Elliott (2004) found that a constructivist mode of learning correlates with teachers having sophisticated epistemologies. On the other hand, an orientation towards a traditional/transmissive conception of learning may reflect teachers holding naive epistemologies. They suggest that an exploratory study of the relationship between

epistemological beliefs and conceptions about teaching and learning may be useful to validate these assumptions. Hence, any investigation of teachers' personal epistemologies might benefit from incorporating additional items to Schommer's epistemological beliefs questionnaire to investigate the relationship of epistemological beliefs to how teachers construct their students' learning in the classroom.

Figure 3

Influence of Schommer's (1990) Five Factors on Each Other



Alternative Conceptions of Personal Epistemology

An alternative to models of synchronic epistemological development, or independent epistemological beliefs, is the organization of individuals' ideas about knowledge or knowing around personal theories (Hofer, 2001). This allows for discipline-specific conceptualization of epistemology, which posits that individuals have divergent epistemological beliefs about disciplines (Hofer, 2000) rather than general beliefs about knowledge.

Hammer and Elby (2002), for example, question both the levels and methods of analysis suggested by existing models of personal epistemology. They argue that beliefs might be consistent with a context, for example within a particular physics course, but not across contexts, for example a physics class and a psychology class.

This shows that personal epistemology “is more situated and less stable or trait-like” (Hofer, 2001, p. 362). Thus, beliefs about knowledge and knowing could not only differ from physics to psychology class, but also from one physics class to another (Elby & Hammer, 2002).

Educational Implications of Epistemological Research

Hofer (2001) reports that only a few research studies have been conducted to clarify the relationship between methods of instruction and personal epistemology. She further asserts that this is a transactional issue because beliefs can affect perceptions of instruction and types of instruction can affect beliefs and epistemological development. That is, “beliefs are likely to influence how students learn, how teachers instruct, and subsequently, how teachers knowingly or unknowingly modify students’ epistemological beliefs” (Schommer-Aikins, 2004, p. 24).

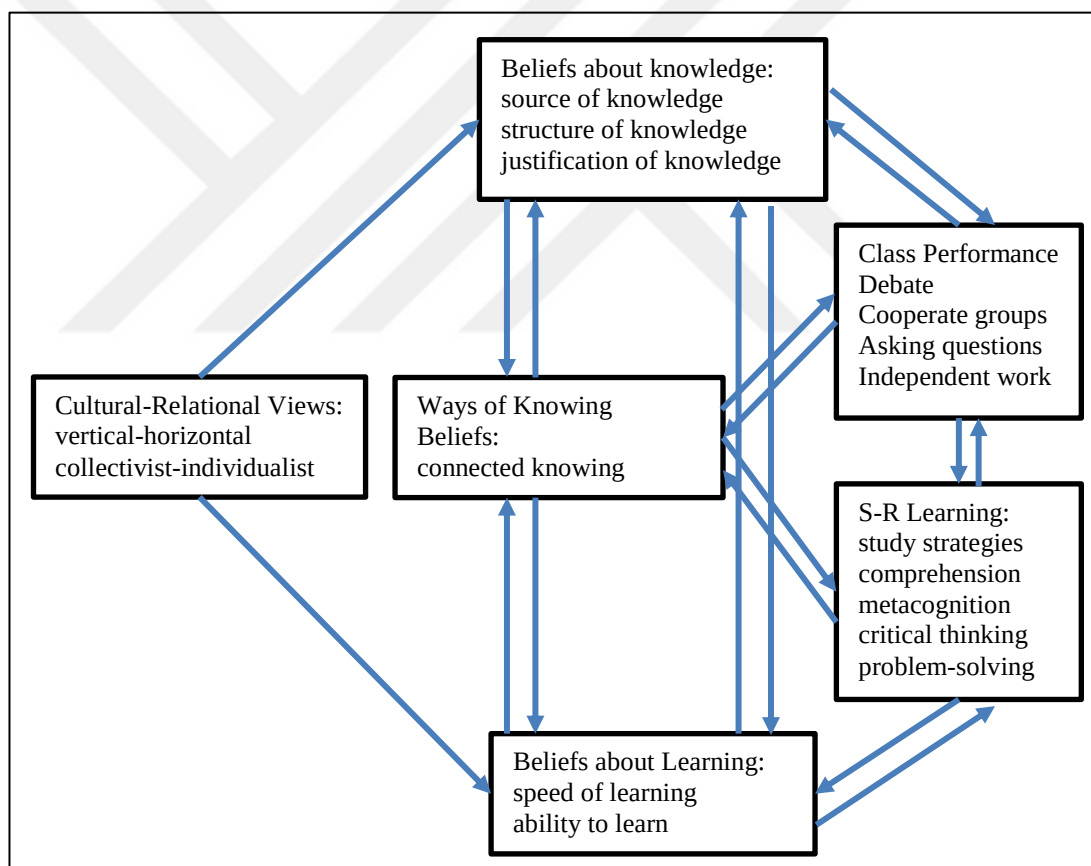
Not much empirical evidence is available to understand what role epistemological beliefs play in teachers’ approaches to instruction (Schraw & Olafson, 2003). However, it seems reasonable to suggest that teachers’ epistemological beliefs not only influence instruction but also assessment. In turn, instruction and assessment are likely to influence students’ developing epistemological beliefs. For example, if teachers require students to synthesize knowledge and apply the knowledge to a challenging, time-consuming task, it is probable that students would develop the understanding and belief that knowledge is complex and that projects which are challenging projects take more time to complete (Schommer-Aikins, 2004, p. 25).

Schommer-Aikins (2004) suggested a model of epistemological beliefs involving the interaction of cultural relational views; beliefs about ways of knowing,

knowledge, and learning; classroom performance; and self-regulated learning (Figure 4). The revised model then separated beliefs about knowledge and beliefs about learning to show how these beliefs interact with each other. This allows for the prediction of an interrelationship between these two sets of beliefs, how they may influence classroom performance and self-regulated learning, as well as the possibility that there is “a reciprocal interaction or perhaps a feedback mechanism among these beliefs” (p. 25) as learners develop over time.

Figure 4

Hypothesized Embedded Systemic Model



Note. From “Explaining the Epistemological Belief System: Introducing the Embedded Systemic Model and Coordinated Research Approach” by M. Schommer-Aikins, 2004, *Educational Psychologist*, 39(1), p. 25.

The Impact of Teacher Epistemology on The Classroom

The above discussion points to epistemology being a major factor in determining success in student learning, according to Schommer's (1990) research using the 5-factor model. A student's conceptualization of knowledge and knowing will determine whether they use a constructivist approach, entailing complexity which favors successful learning, or a transmissive approach, suggesting a naïve orientation to learning with less than efficient learning outcomes. Complex epistemological views are associated with a cognitive constructivist approach. According to Sjöberg (2007) this process of knowledge building requires active involvement in experiential learning in terms of both student learning and teaching. On the other hand, a naïve view posits empiricist approaches favoring traditional, didactic approaches to teaching (Olafson & Schraw, 2006) where learning takes the form of memorization. This, then, can also be reflected in the way teachers perceive and undertake learning on an in-service course. It can be hypothesized that those having more complex views would be more successful in adapting to the context and allowing their beliefs to be accommodated with the new learning from the course, as opposed to those whose views were more naïve and who were less willing to question their mode of learning, being more reliant on quick learning and a reliance on authority. What follows will examine studies that focused on both pre-service and in-service teachers' epistemological beliefs, and their classroom practices, while they were on a professional learning course.

Survey-based studies on the personal epistemologies of pre-service teachers conducted by Cheng et al. (2009), Peacock (2001), Sing and Khine (2008), Yılmaz and Şahin (2011) focused on the belief change of research participants in response to learning and practice on the training course. The findings on belief change in these

studies were varied. In the same vein, a three-year long longitudinal study by Brownlee (2003) came to similar conclusions. Out of the eleven pre-service teachers in her study seven demonstrated more constructivist, two maintained prior beliefs, and two were less constructivist but it was “not possible to clearly identify what has caused these changes” (p. 95). Similar conclusions regarding changes of pre-service teachers’ epistemological beliefs towards a relativist stance were observed in the study by Sing Chai et al. (2009). They stated, however, that although “teachers may report ... relativist and constructivist beliefs about teaching, they may actually be practicing traditional teaching” (p. 354).

Despite the substantial number of studies on personal epistemologies being in the area of pre-service teacher education, other studies such as Lee et al. (2013), Stipek et al. (2001), Stoddard (2010), Walker et al. (2012), Xenofontos (2018) have more closely focused on the relationship between personal epistemological beliefs of in-service teachers and their actual instructional practices. Findings in Chaaban (2017) reveal, despite positive gains from two-year long professional learning, that teachers continued with their strongly held traditional beliefs and moderate constructivist beliefs, expressing concern about “variation amongst teachers in their enactment of change” (p. 607), “and the challenges embedded in unique school contexts” (p. 609). Structural equation modelling was used by Lee et al. (2013) to analyze Chinese teachers’ epistemological beliefs about teaching and learning and classroom practices after a major reform in national curriculum. They concluded that teachers’ epistemological beliefs can either directly or indirectly impact the implementation of reforms in instructional practices. Epistemological beliefs were shown to be a major factor in the uptake of the educational reform, although their claim was based on the teachers’ self-reporting on their classroom practices.

The question then remains as to whether those novice teachers with more complex views would be more willing to change their deeply engrained beliefs. In other words, would a more constructivist orientation on the part of a newly arrived teacher on an in-service induction program help a teacher educator to successfully guide them to more effective practice; or alternatively, would a teacher with a view considered as more naïve be equally as likely to succeed in adapting to a new teaching context and its requirements on an induction program?

Professional Learning

The above sections have been concerned mainly with individuals' beliefs, how they might interact to effect action, as well as analyzing the impact of personal epistemology, as defined by a five-factor model, on their learning orientation. This section looks at common professional development pathway models discussed in the literature, as well as theories of professional learning and the impact of context and working environment on beliefs and personal epistemology. A work context introduces a range of new variables with which individual beliefs and personal epistemologies are confronted, in which opportunities for new learning present themselves.

Professional Development Pathway Models

Professional development (PD) programs aim to bring about change in teachers' classroom practices, their attitudes and beliefs, as well as improvement in students' learning outcome. While doing so, PD programs may fail to take into account factors that motivate teachers to participate in PD, and the change process that teachers go through. The discussion here considers the conditions that enable change, the order and manner in which change takes place, and the way in which specific types of changes might be facilitated and sustained.

Earlier models of change aimed at changing teachers' beliefs about certain aspects of teaching. The assumption was change in beliefs would lead to change in classroom practice. According to Guskey (2002), the motivation for teachers to take part in PD programs is student learning outcomes. Hence, teachers perceive their students' participation and attitude in the lessons as evidence of successful classroom practices. Guskey suggests that when teacher educators design PD programs, they should be aware that teachers expect practical teaching ideas related to the day-to-day delivery of instruction. In the Alternative Model proposed by Guskey's, change is a process based on experiential learning where teachers see the effectiveness of new practices in class resulting in desired learning outcomes. These new practices are retained and continued when teachers observe the positive impact on student learning. That is, change in teacher beliefs is unidimensional, a result rather than a cause.

On the other hand, although Desimone's (2009) model is sequentially similar to Guskey's (2002), it is not unidimensional. In Desimone's Path Model, PD leads to an increase in teacher knowledge and skills, which results in a change in beliefs and attitude. When there is an increase in teachers' knowledge base and change in beliefs, change in instruction takes place automatically, and, taken together, this results in improved student learning. Certain characteristics of PD are considered critical for enhancing knowledge and skills: activities that focus on subject matter content and how to teach them to the students (content focus); opportunities for teachers to engage in activities such as observing seasoned colleagues' classes (active learning); consistency between content of PD and teachers' knowledge and beliefs, as well as school policies (coherence); time span of PD (duration); and

establishing a school community where teachers can exchange ideas (collective participation).

In Clark and Hollingworth's (2002) non-linear Interconnected Model, change is the result of reflection and enactment in four distinct domains: teachers' beliefs, knowledge, and attitude (Personal Domain); professional experimentation (Domain of Practice); reflecting on practice (Domain of Consequences); sources of information, stimulus, and support (External Domain). Here we can see multiple pathways between domains where change in one domain as a result of reflection and enactment may lead to change in another. This model is complementary to both the cognitive and the situated model; teacher growth is the development of knowledge and practice. One can question the extent to which the context in the social situatedness of learning constrains or supports particular practices associated with learning.

Professional Learning Theories and Variables

When looking at the history and development of learning theories, certain processes can be observed. The most obvious ones are: a move from a focus on learners as individuals towards seeing learning as a complex social process; a move away from generalization about learning processes across all learners to considering specific learners in specific contexts; an extending of the focus on conscious knowledge and reasoning to include other features of learning such as tacit knowledge and identity; a move away from a focus on formal education and more towards learning in everyday contexts (Day et al., 2006; Shirrell et al., 2019; Philpott, 2014).

Theories of professional learning in the main reflect these historical developments but focus on bringing to the foreground those aspects of learning that

are more concerned with the individual's tacit knowledge and identity, specific learning contexts, and on the job learning (Philpott, 2014). Professional learning tends more towards humanistic theories of learning, giving importance to personal identities and biographies through an emphasis on what, how and why things are learnt, according to Philpott. He proffers a further distinction as regards theories of professional learning between an emphasis on individual learners and an emphasis on social context. While some theories focus more on cognitive processes, others focus on how the social context in which learning is taking place impacts on learning (Koffeman & Snoek, 2019; Lave & Wenger, 1991). Philpott outlines three main areas that theories of professional learning need to consider: how experience and knowledge are mentally processed by individual learners in order for learning to take place; the effects of social interactions or social learning; and how and why individual differences of learners affect what is learnt.

Again, a distinction is apparent in professional learning between those who focus on how learning takes place, either as an individual or in a social context, and those who focus on what needs to be learnt. Experiential learning (Kolb, 1983), reflective learning (Schön, 1987), cultural historical activity theory (CHAT) and communities of practice (Hodkinson & Hodkinson, 2004) emphasize how learning takes place with little detailed attention given to the specifics of what needs to be learnt. A communities of practice perspective posits that the values and practices of the community need to be developed, in addition to explicit knowledge, tacit knowledge and identity. On the other hand, pedagogical content knowledge, clinical practice, and craft knowledge all dictate in detail what information, skills, and dispositions need to be learnt in order to be, for example, a teacher.

Professional learning theories are important when considering the impact of epistemological beliefs on a teacher's methodological choices and practice. The different approaches mentioned above provide insights into how learning on a training course is subject to a raft of variables such as personal beliefs, cognitive processes, social contexts, personal identities, or content. Eraut (2004) provides details about the information that needs to be obtained in professional learning, and what best fosters learning in social experience and organizations, but not related to teaching-specific contexts. His contribution is discussed in more detail in what follows as it has specific relevance for workplace learning, a key element in this study.

Eraut's Perspective on Professional Knowledge and Competence

Eraut (2004) argues that traditionally knowledge has been identified with codified knowledge, which is generally found in books and general education. However, he points out that workplace performance also depends on uncoded and cultural knowledge acquired through implicit and informal learning while participating in the workplace. The resulting tacit knowledge can be used by people at work, using episodic memory (the store of personal experiences), but cannot always be explicitly articulated. Eraut (2014, as cited in Philpott, 2014) defines personal knowledge as codified knowledge ready for use - knowledge which is acquired through enculturation and constructed from experience, social interaction and reflection. Also included in his definition of personal knowledge are skills developed by receiving feedback on practice. He adds that incidents, impressions, and images provide the basis for informal knowledge, i.e., tacit knowledge, which helps individuals develop self-knowledge, stance, values and emotions.

Eraut (2004) claims that professional practice has four elements that are interconnected and likely to be recursive: assessing clients and situations; deciding what action to take both immediately and over a longer period; following an agreed course of action, modifying, consulting and reassessing when necessary; either meta-cognitive monitoring by individuals or collective monitoring within groups of people involved. The nature of the process is affected by the context in which it takes place and the perceived timescale which a practitioner has in order to evaluate and act. He thus highlights the interaction between the timescale of practice and how it affects the cognition of professional practice.

Not much research has been carried out in relation to transferring knowledge from one professional learning situation or context to another, especially in partnerships between academic contexts and the workplace, where cultures of knowledge, its acquisition and use differ from each other. Likewise, it seems that none of the parties involved in this process want to take on the responsibility in guiding teachers in transforming the acquired knowledge by integrating it with other knowledge and skills to acclimatize to and perform in a new context. This is equally applicable to teachers who are new to the profession or those who are starting to work in a new teaching context. Philpott (2014) argues that “the amount of work needed to reconstruct codified knowledge to be able to use in a professional context is underestimated” (p.30). Due to a lack of support for professional learning in new contexts, all parties involved, academia, schools and teachers, feel discontentment.

Professional Context as a Shaper of Enacted Beliefs

Beliefs, as argued in previous sections, have been formed by previous formal learning or life experiences prior to entering into a workplace and these will inevitably have an impact on how beliefs are enacted in a professional context. In

addition, as discussed above, the context will play an important part in shaping learning through the acquisition of tacit knowledge, more so in the absence of formal learning opportunities. Thus, there is an interplay between beliefs, personal epistemology, newly acquired learning, whether formal or tacit, and the demands of the context. The question as to how the workplace can influence beliefs over time and how that might happen, is a ripe one for further study,

Several competing hypotheses might be considered in relation to workplace learning. One might suggest that work practices will confront the same barriers to change due to deeper beliefs slowing down accommodation to the new environment. A second might be that accommodation to the workplace and rapid enculturation might depend on the personal epistemological beliefs of a recruit, with the person with complex learning views adapting more easily to workplace practices. A third hypothesis might be that the work culture itself might constrict learning. Even with complex personal epistemological beliefs about learning and language learning, the nature of the culture in a school, for example, might potentially be a restrictive factor in exercising those beliefs. Even where induction is provided, endogenous factors may shape practice in ways which do not support effective practice and learning.

In-Service Teacher Education

The research study being reported on here takes place in a large school of English language which prepares students for entry to study in an English medium university in Turkey. Students whose English is insufficient to follow their university courses in the medium of English are required to study in a preparatory program. Students need to attain a benchmarked level of English in order to enter their faculty program (O'Dwyer et al., 2018). The formal induction program is the course that new, or relatively new to the profession or context teachers follow on entry to the

school. This section discusses the need for in-service education from several vantage points, and supports arguments outlined in the previous section on professional learning.

The Importance of In-Service Learning Support for New Teachers

Education is a major contributor to future economic and social well-being by the Council of Europe (Council of the European Union, 2009). Their report reflects concerns related to the current state of quality in education in many European countries. The European Commission (2012) reports that only half of the EU countries or regions offer comprehensive, system-wide induction support to beginning teachers, making it clear that not enough attention is given to new teachers in EU countries, thus presaging undesirable impacts on the standards of education.

Evans (2011), commenting on the national systems of initial teacher training (ITT) in the UK, states that initial in-service teacher training is a relatively new concept that developed in the 1990s.

The importance of in-service teacher education has been recently recognized in Turkey as well. Çimer et al. (2010), reporting on a small-scale survey with primary and secondary school teachers (N=38), state that recent reforms by the Ministry of National Education (MoNE) in Turkey have implemented in-service training (INSET) for teachers. In an ex-post facto study, Kırkgöz (2009) gives an overview of the role and place of English language in the national education system in Turkey and recognizes the importance in improving the standards and quality in English language teaching in primary and secondary schools, suggesting the need for in-service provision. Villegas-Reimers (2003) concurs that providing successful professional development opportunities for in-service teachers is a strong contributor to teachers' work both in and out of the classroom.

In the literature, there does not appear to be clear agreement on what in-service teacher education is and by whom it should be delivered. The meaning of in-service teacher education changes from country to country and from context to context depending on the kind of preparation teachers receive prior to entering the profession (O'Dwyer & Atli, 2015). In most developed countries, in-service education includes, as stated by Bolam (1982, as cited in Villegas-Reimers, 2003), "those education and training activities engaged in by primary and secondary school-teachers and principals, following their initial professional certification, and intended mainly or exclusively to improve their professional knowledge, skills, and attitudes in order that they can educate children more effectively" (p. 55). It can be deduced from this that pre-service teacher education programs cannot fully prepare the student teachers for the profession and, therefore, there is a need to give teachers new in the profession some support so that they can adapt to the actual teaching context.

In a large exploratory study with primary school teachers, Greenland (1983) classified in-service teacher education and training under four categories: certification courses for unqualified teachers; up-grading teachers; preparing teachers for new responsibilities, such as teacher educators or school principals; curriculum innovations, or when teachers need refresher courses. Gardner (1995) suggests a continuum where at one end training takes place wholly away from the school by external institutions, and at the other end training that takes place in the schools in which the teachers normally work. The first end of the continuum is called in-service and the other end is called on-service teacher education. However, as also stated by Berry (2001), these education programs should include strong academic and pedagogical coursework, intensive field experience, and an obligation that candidates meet certain standards on national criteria.

When discussing initial in-service training for new and beginning teachers, induction programs play a crucial role. In their one-year longitudinal, qualitative, empirical study with a group of 20 new graduate teachers, Jarvinen and Kohonen (1995) report on the importance of an induction program during the transition period from student teacher to teacher. The strength of their induction program design was that it gave teachers input on school culture, reflective learning, and learner differences. The new teachers needed a period where they focused on themselves, their self-image and beliefs about teaching and learning. They needed the guidance and support of an experienced colleague, a mentor, working in the same school context, who could give support during the transition period. As Borg (2011) states, although new teachers are observing an experienced colleague assigned to them in given contexts, they are not observed and given feedback on their own teaching, whereas this is a crucial element in helping them explore and redefine their beliefs.

A causal-comparative study by Hawley and Hawley (1997) related to the role of universities in teacher education in Japan states that the universities play a small role in both the pre-service and in-service provision. Pre-service coursework is related to developmental psychology and pedagogy. Teachers must then continue training throughout their careers after graduating from pre-service teacher education programs. Teachers in their first year of probation receive training at the school they are assigned to. That is, the schools take primary responsibility for job-related training based on the assumption that the needs of the institutions vary and that teachers would develop interpersonal working relationships and commitment to the organization. Given the reputation for the quality of education provided to its youth, the Japanese model of initial in-service teacher education seems to best fit the concept.

In the study undertaken here, initial in-service teacher education is considered as on-the-job preparation both for new teachers with some teaching experience, i.e., teachers who are new to the teaching context as well as beginning teachers who have just come out of pre-service teacher education programs (Frank & Gomel, 2003). The purpose of the formal training program entails all the four categories put forward by Villegas-Reimers (2003) and teachers need to demonstrate standards of teaching at the end of the training curriculum; standards are moderated by an external body, viz. Cambridge English.

Distinctive Features of In-Service vs. Pre-Service Teacher Education

Smith (2005) describes pre-service teacher education as establishing the groundwork for professionalism in teaching in order for teachers to develop independently after graduation. A teacher educator's role in this is to provide teachers-to-be with strong foundations of professional knowledge and with the tools for ongoing, independent professional development. During pre-service teacher education programs, teachers form their beliefs and ideals about what education should be like (Farrell, 2003). However, as reported in Farrell (2006) in his case study on teacher transition, pre-service education programs are inadequate for preparing beginning teachers for the real world of the school. Each teacher goes through a unique experience in their first year. Each institution and institutional culture is unique and, therefore, it appears impossible to prepare prospective teachers for the transition to their eventual work context. Thus, the role of in-service teacher education takes on added significance.

Evans (2011) points out the technical/rationalist approach during an in-service teacher education program during which the novice teacher learns the craft of teaching through exposure to experts such as experienced teachers and trainers. This

inquiry-based approach views the classroom as a learning environment and beginning teachers develop by reflecting on their own practice by comparing the theory that they learnt at university with practice they acquire in their teaching context. This implies the need for initial in-service teacher education and for educators with the ability to counsel, impart knowledge, and observe and respond to practice, keeping in mind the different phases novice teachers go through in their first year of teaching.

Thomas and Beauchamp (2011) draw attention to the lack of aiding the teachers from student to teacher transition in teacher education programs and criticizes these programs for merely focusing on what students need to know, how to plan lessons, how to manage a class and encourage learning. The suggestion is made that teacher education programs need to employ a constructivist approach which would permit student teachers to develop a personal sense and understanding of the world, as well as how they see themselves interacting with the students.

In a case study on the growth of a failing novice teacher and his relationship with different mentors, Schmidt (2008) defines the first years of teaching as a time of transition for a beginning teacher, and successful management of these transitions may be a fundamental factor in whether new teachers choose to remain in the teaching profession. The researcher claims that novices, experienced primarily in the role of student, must now begin to function in the role of teacher. After experiencing teaching as a student teacher in another person's classroom with support from a cooperating teacher and/or a university supervisor, new teachers find themselves fully in charge of their own classroom. Although the classroom may appear to be a familiar setting, novices may discover they are unaware of or uncertain about many aspects of running a classroom, and of the unwritten cultural rules of their school. It

is reported that several school districts offer induction programs to ease novice teachers' transition. Many of these programs, whether mandated or voluntary, assign experienced teacher supervisors or mentors to provide ongoing support to beginning teachers as they face the challenges of the first years.

Although these programs have been shown to be helpful, they have not guaranteed success. Potential problems may include a mismatch between mentor and mentee styles, misunderstanding of the mentor's role or power relationships, and lack of time or other limitations of the institutional context. The results of this case study show that it is not enough to appoint supervisors or mentor teachers based on seniority. The role needs to be well-defined, and these groups of professionals need to be trained to meet the requirements of their role as in-service teacher educators. Likewise, there is a lack of conceptualization of how teachers develop and lack of uniformity in the support offered to the novices. O'Dwyer and Atli's (2015) model illustrates the complexity of the teacher educator role in relation to delivering in-service education courses and the need for programs which shape the teacher educator's professional practice.

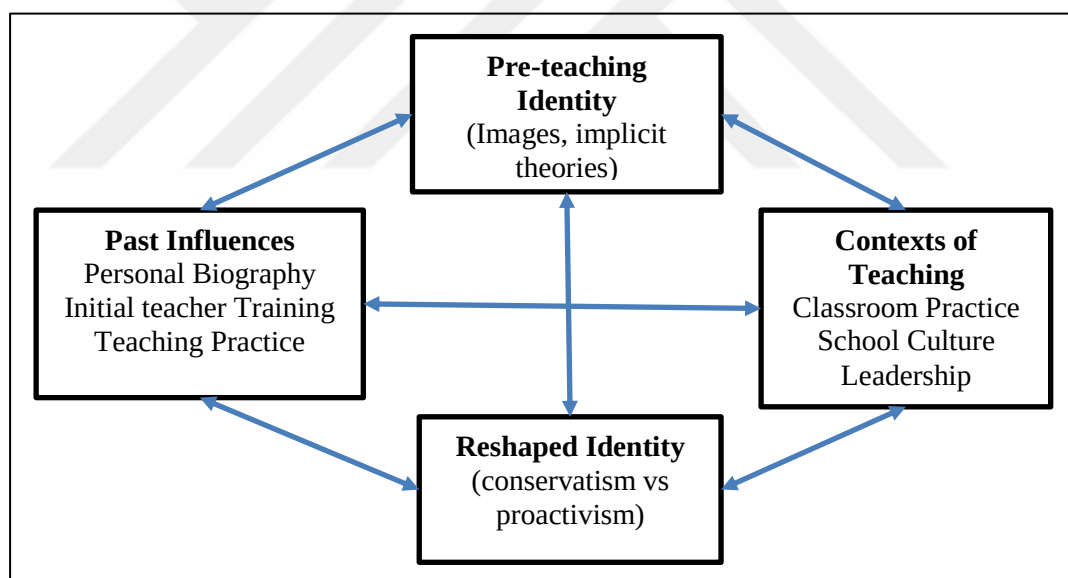
The Process of Becoming a Teacher

The study by Flores and Day (2006), based on the principles of grounded theory, is about the ways that the identities of a group of beginning teachers were shaped and reshaped over the first two years in the profession through the interaction between personal, professional, and contextual factors. The features of feelings of isolation, mismatch between idealistic expectations and classroom reality, and lack of support guidance are identified as key features that characterize the sudden transition from student to teacher. The article provides examples from the literature regarding the phases beginning teachers go through. Data are presented according to

three main influences: past experience as pupils; initial teacher training; and teaching practice. For most of the teachers their pre-service education seemed to have a weak impact on the way they approached teaching and their role identity. Thus, a gap was apparent between theory and practice, i.e., “inner and practical tension between the awareness of pedagogical theories learnt at university and the management of the complex and demanding reality of the classroom” (p. 224), along with the impact of contexts, i.e., classroom practice, and the effects of school culture and leadership. Figure 5, taken from Flores and Day (2006) summarizes the areas that contribute to teacher tension, and their interaction.

Figure 5

Teacher Tension: Contributory Factors and Their Interaction



Note. From “Contexts which shape and reshape new teachers’ identities: A multi-perspective study,” by M.A. Flores and C. Day, 2006, *Teaching and Teacher Education*, 22(2), p. 230.

This literature suggests teacher tension in their first year of teaching is based on: a lack of support and high expectations from the school administrators and colleagues; lack of induction to the workplace; lack of teacher development

opportunities; absence of a place where they can get support while reflecting on their teaching practice; and absence of a sounding board while they implement their beliefs about teaching and learning in the delivery of the curriculum.

Phase Transitions

During the process of becoming a teacher, teachers go through phases. It is stated that teacher beliefs play an integral role on how teachers proceed through these stages (Borg, 2011; Farrell, 2003). The apprenticeship of observation describes the situation whereby student teachers come to the pre-service training courses having spent thousands of hours as schoolchildren observing and evaluating professionals in action (Lorie, 2002). Borg (2004) claims that one of the consequences of this apprenticeship period is that student teachers may fail to realize that the aspects of teaching which they perceived as students represented only a partial view of the teacher's job.

As these teaching behaviors are largely unanalysed, they remain 'folkways of 'intuitive and imitative' (Lortie 2002) and have been described as teaching' 'folkways of teaching', that is 'ready-made recipes for action and interpretation that do not require testing or analysis while promising familiar, safe results' (Buchmann 1987, p.161). This model thus provides student teachers with 'default options', a set of tried and tested strategies which they can revert to in times of indecision or uncertainty (Tomlinson, 1999). (p. 274)

The result of this highly powerful period of pre-professional observation is that teacher education courses, both pre- and in-service, might only have a weak effect on student teachers. The tendency for novice teachers, once they have entered the profession, to revert to their default model can lead to teachers teaching as they were

taught, resulting in the application of a traditional way of teaching once in the profession (Borg, 2004).

Environmental Conditions for Newly Entered Teachers

The environmental conditions that teachers are working in play a crucial role in the transitioning period of novice teachers and may determine whether beginning teachers want to stay in the profession or not. In his case study Farrell (2003, 2006) presents several environmental conditions that led to tension among beginning teachers. For example, in many school contexts there are cliques among teachers in the staff room, which makes the socialization process of the novices difficult. The teachers belonging to such a group may not be keen on communicating and sharing experience with the beginning teachers. It is also noted that in many cases, the new teachers are placed on purpose in rooms which are far away from the staff room, which eliminates the opportunity for them to communicate with and observe their more experienced colleagues. School administrators' expectations that novice teachers do the same amount of work as veteran teachers cause additional tension.

In contrast, Hawley and Hawley (1997) stress the importance of collegiality. For example, the structure of Japanese schools encourages teachers to interact with each other on a frequent basis and, therefore, learning from peers is common and highly valued. It is reported that Japanese teachers have time to meet daily and engage in collective problem solving, participate in formal study groups that support the logic of peer learning. Such initiatives may have a positive impact on the development of personal epistemological beliefs of teachers related to teaching and learning.

Conclusion to the Literature Review

The above briefly reviewed four different areas in the literature: the nature of beliefs, personal epistemology's role in effective learning, theories of professional learning, and in-service teacher education. The review was used to point to some of the potential complexity of inducting new teachers into an in-service context, whether they are relatively experienced teachers moving from one school to another, or whether they are embarking on their first job.

The teacher education literature on the transitions experienced by beginning teachers often refers to the practicum period of student teachers on pre-service training programs. Only a relatively small amount of research appears available on the professional learning of teachers working in-service as teachers of English as a second language, and even less is to be found on the in-service training of English language teachers working in an English medium university context. Newly recruited teachers arrive in post with personal epistemologies which reflect their cultural backgrounds, previous learning histories, varied life experiences, and previous training, either within the Turkish context for local staff, or in different nations for international staff. However, a lack of empirical research is notable related to the epistemological beliefs of language teachers (Morrison, 2013) and the relationship of these beliefs to their conception about teaching and learning during their transition to their profession and new teaching context.

As a teacher educator and researcher, I developed an interest in investigating how new or early career teachers, drawn from a sample of both national and international staff, benefit from induction support in the form of a formal initial in-service course. The literature review has underlined the way in which deeply held core beliefs may be resistant to change and thus shape a teacher's practice. These

beliefs may not reflect best practice, particularly where no induction support is given. Changing personal epistemologies may be a key contributor to ensuring successful learning and effective enculturation to a new professional context.

Figure 6

Conceptual Map of Research Space

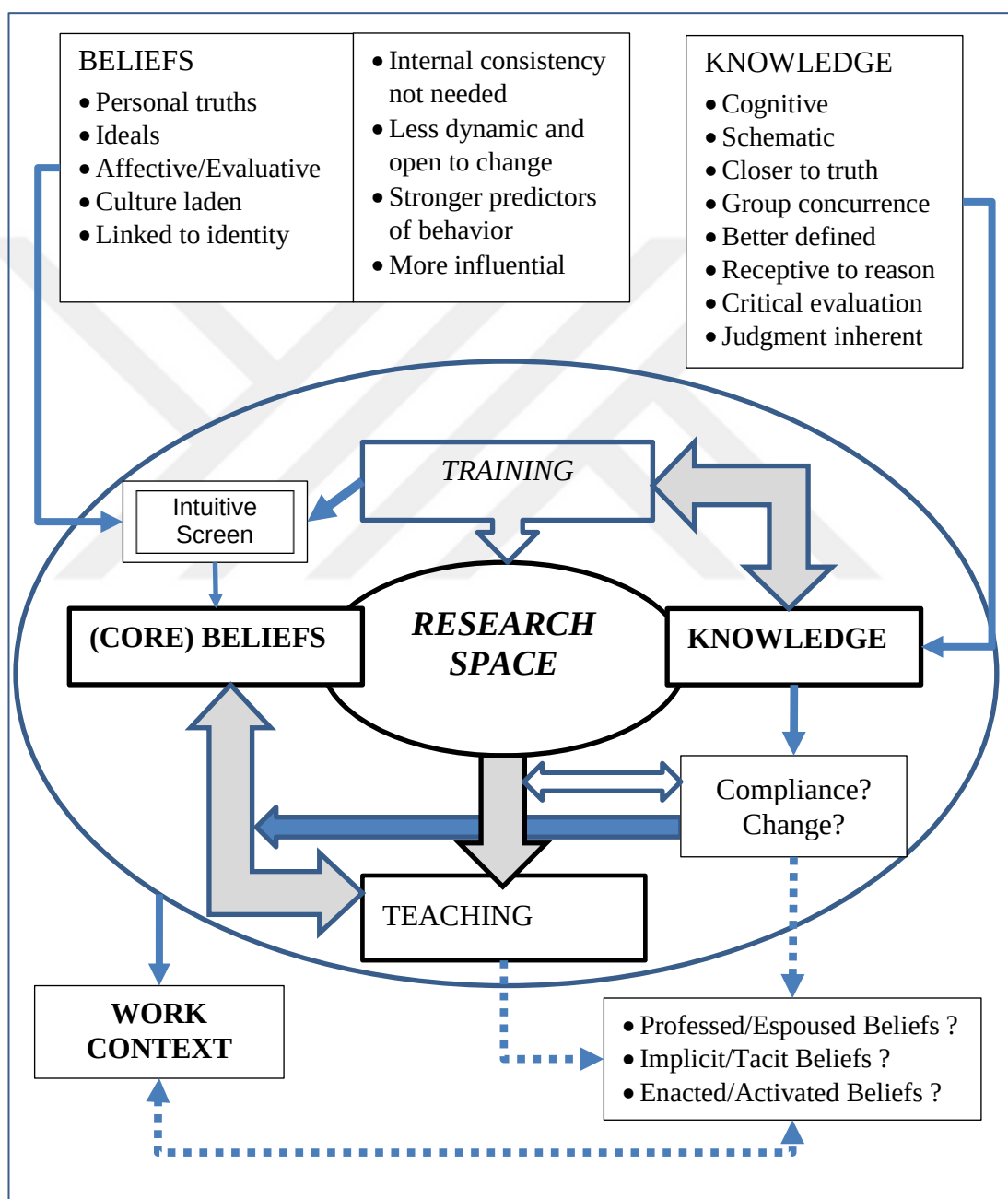


Figure 6 provides a diagrammatic representation of the conceptual framework illustrating the relationships discussed in the literature review. It elucidates the

challenges inherent in researching beliefs during an in-service training program. The research took place within a new work context for research informants and therefore involved enculturation which confronted core beliefs and previously acquired knowledge with new expectations as encapsulated in the training course as well as the institutional culture. According to the literature new members of the school arrive with core beliefs, screened intuitively through previous experience, which may shape teaching practice, represented by the large arrow between beliefs and training. Training is based on accumulated knowledge and reflects the desired approach to teaching and learning espoused by the context, represented again by a large arrow. The research challenge, represented by the research space, was to analyze the induction process from the perspective of teachers on the training course and determine whether they complied with new knowledge, espoused it and exhibited it in the classroom, or whether, they remained true to their core implicit beliefs and only gave lip service to the needed change in their practice and reverted once the pressure of induction was lifted.

In the next Chapter I outline how I went about studying the effect of epistemological beliefs, whether explicit or implicit, during the formal induction program designed to help newly arrived teachers adapt to an institutional culture. I followed the progress of four such teachers over a year-long program and assessed whether epistemological beliefs changed over time in response to the in-service course, and whether any change was reflected in their practice. I analyzed beliefs using Schommer's five factors and twelve subsets discussed in the literature review, with a view to differentiating between teachers' naïve and complex epistemological beliefs. Schommer's framework provided a means of gauging change over time on the assumption that moving towards complex beliefs represents a positive change.

Deeply held beliefs were assumed to be naïve if they blocked teachers using a constructivist learning orientation. A constructivist approach to language learning was considered on the formal teacher training course to reflect best practice, and thus a movement towards more complex beliefs was a sought-after goal.

My assumption was that a formal in-service induction program provided an opportunity for reflection in the work context. Support realized through classroom observation, tutoring and courses sessions, would bring into harmony professed epistemological beliefs and classroom practice, and would change, over time, those core epistemological beliefs which militated against adopting best practice. In other words, implicit beliefs and enacted beliefs, i.e., in class teaching, would be congruent and reflect best practice. It was my position that a formal induction process would have a positive impact on the relationship of beliefs to classroom practice and contribute over a transition period to better classroom skills and enculturation to the workplace.

Chapter Three outlines the research methodology adopted to meet the research challenges, in particular it outlines both the theoretical and analytical research frameworks to establish the epistemological beliefs of selected informants and monitor any change in their beliefs over the period of a formal in-service induction course. It sought to answer the questions as to whether core beliefs shape practice, whether changes take place in beliefs and practice over a transitional period, how such change might happen, what commonalities exist in shaping informants' epistemologies during an in-service course across their year-long induction period, and whether beliefs and practice might be shaped by other influences, and what these might be.

CHAPTER 3: RESEARCH DESIGN AND METHODS

Introduction

Chapters 1 and 2 reviewed literature on beliefs related to “true” knowledge, personal epistemology, and professional learning. The discussion ended by looking at the teaching of English language in-service, differentiating it from pre-service learning, and pointing to the challenges inherent in accommodating to a new work environment, and navigating transitions which are integral to that process. Part of the transition in the context under study involved participating in an initial in-service training program over a period of a year during which participants’ beliefs were confronted with professional expectations in a new professional context. Studies reviewed on personal epistemological beliefs were predominantly in the field of mathematics, science and reading, hence the need to broaden knowledge by investigating in-service language teachers’ personal epistemologies and the role they played in shaping classroom practice when in a new work context.

The chapter begins with a description of the context in which the study took place, background information on the formal in-service teacher education program which provides the backdrop to the study, the participants to the study, a brief description of a pilot study. The chapter moves on to a review of research approach, including a discussion of chosen paradigm, analytical and theoretical frameworks, research methods and sampling approach adopted for selection of the research informants, approaches to data collection and analysis, plus conformity to ethical requirements.

Throughout this chapter the terms ‘teacher trainers’ or ‘in-service teacher educators’ will be used interchangeably to refer to the teachers delivering the formal in-service teacher education course.

Context

Research is “a form of inquiry whose focus is some proposed or existing knowledge construction and which is aimed at the extension or revision of that construction (reconstruction) and or the development of related new constructions” (Lincoln & Guba, 2013, p. 61). There are cases when the inquirer and research participants collaborate to co-create reality for which the values, i.e., axiology, of the inquirer, research participants, as well as the values inherent in the context in which the research takes place “must be uncovered and made transparent” (p. 61). This section describes the context in which the study took place, some background information on the origin of my interest in teacher beliefs during in-service learning, and an introduction to the participants in the study.

Context for the Study

The study was situated in the English preparatory program of a private university’s School of English Language in Turkey, in which both national and international academic staff work side by side teaching a yearly cohort of about 2500 full-time students. These students have all been placed in the university through the national university exam taken by high school students on completing Grade 12, which ranks students according to their chosen faculty and the subject combination they studied in high school, and then allocates them competitively to one of the university choices they had made.

The university has a total of about 12,000 undergraduate and graduate students for whom the medium of instruction is English, and for whom entry to the

faculties requires an upper-intermediate level of English proficiency. On enrollment to the university students are required to take an entrance exam which assesses their use of English, receptive and productive skills. A formal study (Kantarcıoğlu et al., 2010) benchmarked the entrance exam to B2 on the Common European Framework of Reference for Languages (CEFR), providing empirical evidence of the proficiency level of the exam, and thus the average language level of the student cohort.

Students not meeting the English entry requirement are placed in one of five levels in the preparatory program to improve their English proficiency and acquire academic skills needed to meet the required benchmark in their faculties. The program is skills-focused, which presents a challenge for many students as their prior learning in primary and secondary schools was often grammar-focused. The English language teachers in the preparatory program may be assigned to teach any one of the five levels, and, as the program is based around eight-week teaching blocks for each level, a teacher may conceivably teach five different levels, from beginner to B2, in any one year. Students are required to meet the program goals within two years, otherwise they are dismissed from the university, thus there is inherent pressure on teachers to deliver success.

Professional Learning - In-Service Certificate Course

In-service professional learning opportunities offered to the English language teachers who deliver courses in the preparatory program cover seminars, conferences, short courses, and formal qualifications on recognized certificate and diploma programs; previously the opportunity to do an in-house MA program was also offered to teachers. The preparatory program recruits experienced language teachers and new graduates or early career teachers. The acculturation of less experienced teachers into the school culture and teaching methodology is easier,

according to evidence in the literature, once they have gone through in-house in-service teacher education programs (Antoniou & Kyriakides, 2013; Borg, 2003, 2011; Farrell, 2003, 2006; Meirink, 2009). New or less experienced teachers take an in-service certificate qualification in English language teaching in their first year in the school, moderated and certified by an external professional body. Although the certificate program is an initial-service qualification with a pre-determined syllabus and assessment criteria, it offers the flexibility to design training content to match local needs and provide guidance and support for a better understanding of the institutional teaching context and methodology. Successful completion of the course forms part of a newly recruited teacher's probation requirements.

The certificate course targets a constructivist teaching approach, developing autonomous, competent professionals, with importance given to reflective practice *on* and *in* action (Schön, 2008). Teachers explore their beliefs about teaching and learning, linking them to theory and practice as they (re)construct their teaching identities (Borg, 2011; Boyd, 2010; Kennedy, 2014). Teachers are encouraged to collaborate, share, and learn from each other. In-service educators act as guides, facilitators, and transmitters of knowledge.

The program requirements of the course consist of assessment of teaching practice, written methodology, language assignments, and peer observation, as follows (see Table 3 for an overview). Three non-assessed (NTPs) and four assessed teaching practices (TPs) focus on teaching receptive and productive skills, grammar, and vocabulary. Participants prepare lesson plans and materials and hold pre-conferences with a personal tutor, discuss beliefs underlying lessons plans and their alignment with the targeted teaching methodology. Teachers write reflections which are shared, along with tutors' commentaries, during post-conference discussions.

Table 3*In-Service Certificate Course Requirements over One Academic Year*

Period 1	Period 2	Period 3	Period 4	Period 5
NTP – Language systems NTP – Receptive skills	NTP – Receptive skills ATP – Receptive Skills MA 1 – Evaluation of teaching	NTP – Language systems ATP Teaching grammar Assessed TP Teaching Vocabulary MA 4 - Learners and Learning	NTP – Productive skills teaching (Optional) ATP – Productive skills MA 3 – Evaluating and supplementing course book materials	MA 2 Planning beyond the lesson LT 1 Reading and presenting LT 3 Focus on learner's written language
LT 4 Focus on teacher's language	LT 2 Focus on learners' spoken language		LT 1 reading and presenting	
PO 1 Interaction Patterns PO 2 Instructions and CCQs	PO 3 Teaching receptive skills PO 4 Error Correction	PO 5 Teaching grammar PO 6 Teaching Vocabulary	PO 7 Teaching productive skills PO 8 Supplementing coursebook materials	

Note. NTP = non-assessed teaching practice; ATP = assessed teaching practice;

MA = Methodology Assignment; LT = Language Task; PO = Peer Observation.

Four written methodology assignments (MAs) require: planning, delivery and reflection on classroom management, tasks, learning objectives; adaptation of course-book materials, and reflection on their effectiveness; reflection on the

response of learners to tasks; planning and delivery of a grammar lesson, with a series of follow-on lessons. Four language tasks (LTs) focus on language awareness, based on an analysis of learner discourse, and classroom presentation skills. Finally, teachers reflect on eight peer observations (PO) with a focus set by tutors, reflecting certificate course content.

Organized into five course periods, the course follows the teaching structure on the preparatory program, namely eight-week blocks covering 160 to 200 hours of instruction. At the time of the study almost 90% of program staff had achieved this certification which had contributed in good measure to the institutional culture, a collaborative work environment, and a common understanding and institutional discourse about teaching and learning. Senior staff support new colleagues by providing help in daily lesson planning and teaching practice preparation, through sharing ideas and materials, and accepting observation of classes.

Pilot Study

In my in-service teacher educator role on the certificate course, I had witnessed differences in the teaching and learning philosophy amongst, as well as between, Turkish and international teachers. I had linked such differences to their historical and cultural contexts (Creswell, 2013). Such differences in beliefs seemed to affect the transitioning of those teachers to their new teaching context.

In order to test my assumptions, and with a view to trialing data collection instruments, viz. open-ended questionnaires, semi-structured interviews, fortune-lines, etc., I conducted a pilot study during the 2014-2015 academic year, an overview of which is given in Appendix C. Six course informants were selected, 3 national and 3 international, with different years of experience. They were asked about their motivation levels on the certificate course, their confidence in terms of

role identity, and the extent to which their expectations had been met during their transitioning to their new context.

The data analysis increased my awareness of how differences in beliefs affected these informants' transition to the profession and new context. Differences, it turned out, were not due solely to nationalities; similarities in beliefs were observable amongst those from different national and international backgrounds suggesting something else was at play in terms of fundamental beliefs related to teaching and learning. After sharing and discussing my findings with Professor Kay Livingston, from the University of Glasgow, I realized that personal epistemological beliefs played a major role in teachers' transitioning processes, which led me to my PhD research topic.

I decided to gain further insight into early career English language teachers' epistemological beliefs and the origin of these beliefs about learning in general and language learning in particular. I wished to select and construct a detailed inquiry around a reduced number of informants to know whether their beliefs about learning and teaching were reflected in their classroom practice on entry to the work context or not, whether their beliefs and practice changed in response to the year-long teacher education course, and if so how, and if not, why not. In line with my pilot study, I also sought insight into whether personal epistemological beliefs differed significantly between cultural groups in the institution and whether background factors were at play.

Teachers on the Certificate Program

During data collection, the English language preparatory program had 165 language teachers, of whom 39 were native speakers of English (UK, USA, Canada, Ireland, Australia, and South Africa). 24 newly recruited teachers who were on the

certificate program as part of their first year in the school formed the cohort used as the basis for selecting informants for this study. A detailed analysis of the background profile of this cohort on the certificate course is given in Chapter One. A detailed account is given later in this chapter as to how a survey was developed, validated statistically, and administered to the whole cohort with a view to selecting informants whose personal epistemological beliefs spanned a spectrum from naïve to sophisticated.

Research Approach/ Design Process

Research Questions

The conceptual framework of the research space for this study, outlined in Figure 6, Chapter 2, distinguished personal epistemological beliefs which reflect personal truths, termed implicit or core beliefs, from knowledge which is closer to truth and which reflects group concurrence about best approaches to learning and teaching, acquired critically. Using this framework, the research targeted the extent to which previously developed implicit or core beliefs, screened intuitively by the individual, determined methods used in the classroom teaching of selected informants, and whether the beliefs and their enactment in the classroom were congruent and reflected the constructivist approach to learning and teaching favored on the certificate course, or whether their beliefs, profession of those beliefs, and enactment were disassociated. The study also sought clarity on any other factors which entered into play in the progression or change in beliefs and their activation. All informants followed the yearlong certificate program and were available for follow-up one semester beyond the end of the program in the same context. In order to facilitate discussion of the research design in subsequent sections, the main research question and sub-questions of the study are restated here from Chapter 1.

Main Question

How does transitional learning on a formal in-service training course affect a sample of newly recruited international and national teachers' personal epistemology about learning in general, and language learning in particular?

Sub-questions:

1. What are the general and language learning related personal epistemologies of early career English language teachers on a structured induction course when in a new workplace context?
2. How do these personal beliefs relate to their performance in the classroom as they transit the course?
3. How do their personal belief-related perceptions change over time in the new context, if at all?
4. How do these perceived changes in beliefs, as a result of transitional learning experiences, affect participant teachers' classroom practice in the new context?
5. What distinctions arise, if any, in responses of teachers from different cultural backgrounds and prior professional learning experiences?

Research Paradigm

A research paradigm, a set of common beliefs and agreements shared between scientists about how problems should be understood and addressed (Kuhn, 1962), "influences the way knowledge is studied and interpreted" (Mackenzie & Knipe, 2006, p. 196). This "basic belief system or worldview guides the investigator, not only in choices of method but in ontologically and epistemologically fundamental ways" (Guba & Lincoln, 1994, p. 105). Selecting an appropriate paradigm impacts the conduct and results of a study.

A positivist paradigm reduces complexity to the sum of its parts, and is deterministic in looking for cause and effect relationships (Hesse, 1980). Historically much emphasis in research was placed on quantification (Guba & Lincoln, 1994) to verify (positivism), or falsify (post-positivism) an existing hypothesis (Popper, 1968). However, a quantitative focus on randomly selected variables may not include all variables that could alter research findings as human behavior cannot be understood without understanding individuals' meanings and purposes. The conventional, positivist research paradigm suggests objectivity and independence between hypotheses and method of data collection. Proponents of alternative perspectives object, claiming that theories and facts are quite interdependent (Bernstein, 1988; Guba, 1990; Guba & Lincoln, 1994; Lincoln & Guba, 1985). Statistically meaningful generalizations may not always apply to individual cases.

In social sciences, understanding, viz. *Verstehen*, is fundamentally different from explanation in the positivist sciences, a distinction between idiographic methods, not linked to general laws of nature, and nomothetic rule-governed methods (Weber, 1978). By listening to people's experiences and observing their actions, a researcher can construct understandings of experiences and perceptions. Subjective meanings are attached to the characteristics of an individual's behavior. Subjectively meaningful behavior, Weber's "action", constitutes the basic unit. However, "social action" must be present, which makes the quality of the subjectively meaningful behavior apparent by taking account of the behavior of others. Realities are perceived in the form of multiple mental constructions, are socially and experientially based, local and specific in nature, and dependent on the researcher who is constructing them (Guba & Lincoln, 1994): "Constructions are not more or less 'true', in any absolute sense, but simply more or less informed and/or

sophisticated” (p. 111). Thus interpretation, context embedding, social interaction and a researcher’s axiology are important elements of this alternative approach to knowledge creation.

For my inquiry, I adopted the interpretivist-constructivist paradigm in preference to a positivist or post-positivist stance (Table 4). In a constructivist paradigm, I understood that multiple constructed realities are possible. An interactive relationship exists between the inquirer and informants, who influence one another and are inseparable. The aim of my inquiry was to develop idiographic knowledge of individual cases and form working hypotheses rather than generalizations, to allow me “to understand the subjective world of human experience” of the individual cases I was researching (Cohen et al., 2007, p. 21). My research questions by their nature required me to interpret my informants’ personal epistemologies about learning and teaching in a dialogical relationship to arrive at a deep level of understanding of their implicit beliefs. However, my understandings were also developed by observing social action in the workplace, namely teaching and learning approaches in the classroom, which broadened my understandings of personal beliefs by adding “social action”, in Weber’s (1978) terms above, as an additional lens to my interpretation and understandings, allowing a richer palette of perspectives to evolve from the data.

In adopting an interpretivist perspective for my study I decided against the critical paradigm (von Glasersfeld, 1991) which proposes a reality in which culture, race, gender, and location are factors that influence research (Siegel, 2012), preferring the constructivist approach (cf. Table 4). The critical paradigm addresses issues of social justice by “interrogating values and assumptions, exposing hegemony and injustice, challenging conventional social structures and engaging in social actions” (Crotty, 1988, p. 157). My intention was to understand through a

Table 4*Basic Beliefs of Inquiry Paradigms*

Item	Positivism	Post-positivism	Critical Theory	Constructivism
Ontology	Naïve realism – “real” reality but apprehendable	Critical realism – “real” reality but only imperfectly and probabilistically apprehendable	Historical realism – virtual reality shaped by social, political, cultural, economic, ethnic, and gender values; crystalized over time	Relativism – local and specific constructed realities
Epistemology	Dualist/objectivist; findings true	Modified dualist/objectivist; critical tradition/community; findings probably true	Transactional/subjectivist; value mediated findings	Transactional / subjectivist; created findings
Methodology	Experimental/manipulative; verification of hypotheses; mainly quantitative methods	Modified experimental/manipulative; critical multiplism, falsification of hypotheses; many include qualitative methods	Dialogic / dialectical	Hermeneutical/dialectical

Note. From *Competing paradigms in qualitative research* (Vol. 2), E.G. Guba & Y.S. Lincoln, Eds. 1994, p. 109, Thousand Oaks, CA: Sage.

detailed description of cases, leading to tentative conclusions to elucidate the impact of epistemological beliefs on enactment in the classroom within professional learning, not to defend a position.

Approaches to Qualitative Inquiry

Case-study

For my research I adopted a single case-study inquiry as a key element in my analytical framework. A case is “a phenomenon of some sort occurring in a bounded context” (Miles & Huberman, 1994, p. 25), and serving a revelatory purpose (Yin, 1994). My study was fixed in time and place and focused on the evolution of epistemological beliefs of informants, a phenomenon, within a professional training program occurring in a specific time period and bounded context. Case studies are suited to contexts where “a how or why question is being asked about a contemporary set of events over which the investigator has no control” (Yin, 1994, p. 9) and are especially useful “when the boundaries between phenomenon and context are not clearly evident” (Yin, 1994, p. 13). My study investigated a complex social phenomenon in a unique context, a preparatory school of English language, during a certificate course which impacted informants’ personal epistemological beliefs as they passed through a learning and teaching process; thus, the study explored a dynamic and distinctive situation in which interaction with the context was integral to outcomes, and where the boundaries between implicit, professed and enacted beliefs in the context were often fluid (Appendix D).

The fundamental characteristics of a case-study are: its grounding in “natural settings studied at close hand”; its provision of a “more holistic study of complex social networks”; its permitting “examination of continuity and change in lifeworld patterns”; and its facilitation of “theoretical innovation and generalization” (Orum et

al., 1991, p. 6). The setting in my case was natural and involved the close study of four informants. It was focused in particular on continuity and change in informants' personal epistemological beliefs and their enactment longitudinally during a year-long formal professional learning course in a specific workplace context, namely their lifeworld. "Well-constructed case studies are holistic and context sensitive" (Patton, 2002, p. 447). In my study I sought to look at informants' individual interaction with the course and context through a vertical analysis, explained in later sections in this chapter, of each informant's personal epistemological beliefs and classroom enactment, referencing at the same time to the particularities of the context on the progression or not of those beliefs. Thus, sensitivity was met through particular attention given to specific individuals. The holistic aspect of the study was met through a horizontal analysis in which the four informants' experiences were cross referenced allowing patterns to be detected to facilitate theoretical generalization.

A good case-study design requires a clear definition of the unit of analysis, the case itself (Yin, 1994). I identified my case as the evolution of personal epistemological beliefs of informants on a formal training course in a new work context. A "case-study can contain more than one unit of embedded analysis" (Freebody, 2003, p. 83), so despite opting for a single case design, I used my individual informants as embedded subunits within the single case as each subunit was analyzed independently, as referred to above, but then incorporated into a horizontal analysis. This was an intra-case analysis of the subunits with a view to detecting commonalities and differences within the case-study as a whole in order to enrich the case study description and contribute to potential innovation or generalization within the case. Such subunits "can serve as an important device for

focusing a case-study enquiry”, reducing “unsuspected slippage” due to too holistic an approach (Yin, 1994, p. 42). So, although my study is not a multi-case, *inter-site* comparison, some contribution to generalizability to other settings is available through *intra-site* comparison by using embedded subunits in the study.

For my case-study I identified a priori a general set of research questions from a literature search. Research questions may be amplified to reflect new insights as understanding develops, while ensuring the unit of analysis remains intact. In my study I amplified the focus on personal epistemological beliefs to include beliefs about professional learning given the central role of the certificate course in the case-study. My design approach conforms to a post-positivist interpretivist paradigm, as explained earlier, with data collected from multiple sources of information, observations, interviews, and documents, and reported as a case description (Baxter & Jack, 2008). The case-study integrated a hermeneutic inquiry as the means by which informants’ personal epistemological beliefs were established and analyzed through a classical hermeneutic interaction between me and informants, as described in detail in the section which follows this one.

Methods reflecting positivist or hermeneutic traditions may exist side by side within the same case study (Gummeson, 2000) as a case-study is a flexible research design (Robson, 2002), which may incorporate a mixture of qualitative and quantitative approaches (Lee, 1999; Orum et al., 1991). Differences may complement each other, providing more breadth, depth of understanding, corroboration, and “more comprehensive, internally consistent and valid findings” (Johnson et al., 2007, p. 122). The blending of qualitative and quantitative in my study corresponds to a dominant-less dominant design (Cresswell, 1994) in which a small quantitative component was designed into the research. The major advantage

of this design is “its utilization of the unique strengths of one research tradition whilst capitalizing on selected attributes of the other” (Lee, 1999, p. 13). I developed a statistically validated survey which I used to select informants using a spectrum of naïve to sophisticated epistemological beliefs. The survey results did not play a major role in the analytical framework for which an interpretivist perspective was preferred, but it did allow informants to be selected from the available cohort based on a validated statistical measure of their mean epistemological beliefs related to general learning, teaching and learning, and professional learning. This stratification of informants according to their average scores on the survey served a useful purpose when analyzing patterns in the case-study outcomes, as outlined in Chapter 4.

There are “no fixed formulas” for analyzing case study evidence (Yin, 1994 p. 102) other than producing compelling analytical conclusions, with careful attention to quality issues. Initial analytical tactics might include either a judicious mix of inductive and deductive techniques (Patton, 2002); “all types of research become an iteration between the deductive and the inductive ... sometimes referred to as ‘abductive’ research” (Gummesson, 2000 p. 64), or “naturalistic retrodution” (Emerson, 2004, p. 458). Once I had collected data using the classical hermeneutic approach referred to earlier, I adopted a theoretical set of propositions from previous research about epistemological beliefs (Schommer, 1994a) as a means of categorizing the data into either examples of a naïve or sophisticated (called “complex” in this study) epistemological beliefs over the period of the study. This was both deductive, as I had previously worked out what examples of naïve and sophisticated beliefs resembled in a language teaching context (Appendix E), and inductive as I applied the prior analysis to units of data collected. The analysis led to a rich and detailed description of informants’ epistemological beliefs, referenced to

beliefs about learning in general, teaching and language learning, and professional learning, over three distinct time periods in the case-study.

The principal analytical tactics recommended in the literature (cf. Lee, 1999; Miles & Huberman, 1994; Patton, 2002; Robson, 2002; Yin, 1994) are pattern matching; time-series analysis, and, explanation building, facets of criterion-related validity, stability, and internal consistency, respectively (Lee, 1999). Expected patterns derive from “formal theory or a set of (less formal) conceptual propositions” (Lee, 1999, p. 76). In my study I used pattern matching to build understandings around the phenomenon being studied, to build explanations, and support eventual generalizations as a means of providing meaningful answers to my research questions. Patterns were developed separately for each of the embedded cases by applying Schommer’s (1994a) formal theory, distinguishing between naïve or complex implicit, professed, and enacted beliefs. A detailed case description accompanied each of the embedded cases over each of the three phases of the case-study. Patterns were then compared for commonalities across embedded subunits, namely each of the four informants, with a view to intra-case analysis.

The second analytical technique, time series, allows phenomena and local contexts to be followed over time, or to be reconstructed. In this case-study the three embedded cases were studied over time as an integral part of the analytical process. In other words, I wished to establish what differences, if any, became apparent in following the four subunits’ belief profiles through to conclusion in each of the three chosen research phases. Time analysis permitted important insights to develop as regards the speed of change in beliefs, a key focus of the study.

Finally, explanation building is associated with iterative techniques which contribute to internal validity. My study used explanation building to develop an

understanding of the internal logic of the process of change in beliefs, and whether there was a consistent chain of evidence to support conclusions. Explanation building was constructed around Schommer's theoretical insights applied equally, iteratively, to each of the informants over the three phases of the study with a view to distinguishing patterns over time. This provided a valid common descriptive framework from which to build explanations to support conclusions from the data.

Hermeneutic Approach

A research methodology helps researchers understand the process of inquiry within a research paradigm (Kaplan, 1973). Yılmaz (2013) claims that it is far more complicated to define qualitative research as findings are not arrived at "by statistical procedures or other means of quantification" (p. 311). Qualitative research is "an emergent, inductive, interpretative and naturalistic [constructivist] approach to the study of people, cases, phenomena, social situations and processes in their natural settings" (p. 312) so as to unearth what meanings people attach to their experiences of the world in the form of a thick description. Table 5 presents a summary of the philosophical assumptions underpinning the characteristics of qualitative research.

Three different 'traditions' exist in a qualitative, interpretative approach: phenomenology, ethnomethodology and symbolic interactionism (Jacob, 1987). Phenomenology is the study of phenomena, their nature, and meanings (Finlay, 2009). Phenomenology as a discipline recognizes that "all experience must be understood in the context of the person having the experience and the way that they see the world" (Langdrige, 2008, p. 1128). This is called the "lifeworld" by Husserl (1937, 1970), meaning the world as experienced rather than a world separate from people experiencing it. Ethnomethodology, like phenomenology focuses on the

Table 5*Philosophical Assumptions about Characteristics of Qualitative Research*

Assumptions	Questions	Characteristics	Implications for practice
Ontology	What is the nature or reality?	Reality is subjective and multiple	Use quote and themes in words of participants, provides evidence of different perspectives
Epistemology	What is the relationship between the knower and that being researched?	An attempt to lessen the distance between the researcher and that being researched by working collaboratively	Collaborate, spend time with participants in the target context, become an 'insider'
Axiology	What is the role of values?	Acknowledgement of value laden research, biases are present	Openly discuss values that shape the narrative and include own interpretation in conjunction with the interpretations of participants
Methodology	What is the process of research?	Use of inductive logic, study of the topic within its context, use of an emerging design	Work with details before generalizations, describe in detail the context of the study

Note. From “Comparison of quantitative and qualitative research traditions:

Epistemological, theoretical, and methodological differences,” K. Yilmaz, 2013,

European Journal of Education, 48(2), p.316.

world of everyday life, but aims to gain an in-depth understanding of how practical activities, circumstances and sociological reasonings are dealt with (Garfinkel, 1967). Symbolic interactionists, on the other hand, are concerned with the nature of interaction to create “a more active image of the human being and reject the image of the passive, determined organism” (Cohen et al., 2007, p. 24). The study I engaged in here sought to identify the personal epistemological beliefs of informants on an in-

service course in a new teaching context and follow their personal constructions over time. Elements of ethnomethodology were evident while investigating how practical activities were dealt with, and symbolic interactions while constructing meanings during individual tutorial meetings with participants. However, the priority was to develop an in-depth understanding of how participants experienced and constructed meaning (Finlay, 2014; Kafle, 2013; Langdridge, 2008) related to their professional beliefs during on-the-job learning (Eraut, 1985, 2004) in a new work context. In other words, the study aimed at getting as close as possible to understanding participants' lived experiences. Therefore, a phenomenological inquiry perspective was followed in which attention was given to "the specific ways in which the individuals reflect on and experience their 'lifeworld' ... as conscious actor who actively constructs meaning" (Langdridge, 2008, p. 1128).

Uncovering constructions (Lincoln & Guba, 2013), namely epistemological beliefs regarding learning and teaching, was realized through the researcher and participants working closely together. Collaboration between the inquirer and participant as equals facilitates a careful examination of responses for underlying meanings. Such a hermeneutic approach leads to "a successively better understanding of interactions in which one is usually engaged with others" (Lincoln & Guba, 1985, p. 88). Thus, hermeneutic inquiry allows the researcher to ask questions about how meaning is derived as well as how participants are involved in that meaning (Agrey, 2014) in order to unearth the subjective experience of the research participants and bring about the objective nature of the things as experienced by them (Kafle, 2011; Prasad, 2002; Yanchar, 2015). Hermeneutic studies situate participants in a particular historical tradition which allows them to see both how they were guided and constrained by their prejudices, and how the

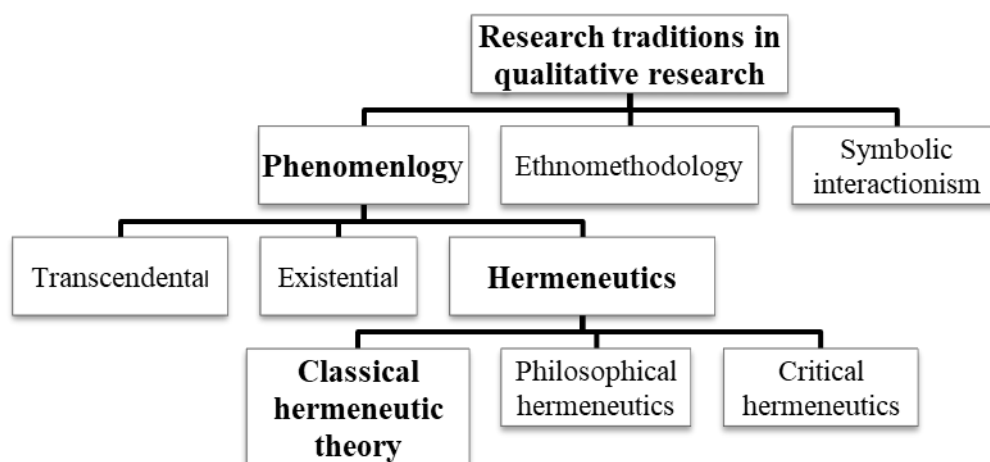
prejudices influenced their relations with others. This is particularly relevant in the case explored here as beliefs may reflect personal biases and provide the basis for action which may run counter to accepted “knowledge”, and which may lead to action in a work context which runs against the contextual norm.

Hermeneutics are classified under three categories: classical hermeneutic theory; philosophical hermeneutics; and critical hermeneutics (Figure 7).

Philosophical hermeneutics explores philosophical factors affecting the interpretation of human activities, and critical hermeneutics is concerned with developing “a more comprehensive hermeneutics of critique and emancipation” (Prasad, 2002, p. 16); neither of them directly reflected the current research. Classical hermeneutic theory, on the other hand, guides the process of correct interpretation to minimize “differences between the author [research informant] and the reader-interpreter with respect to their personal histories, use of language, culture, worldview” (Prasad, 2002, pp. 14-15). The author’s intended message is understood by the interpreter through “Verstehen” [understanding] rather than “Erklären” [explaining].

Figure 7

Summary of Selected Research Methodology



I adopted a classical hermeneutic approach as one of my analytical tools to explore the links between participants' backgrounds, core beliefs, epistemology as regards to teaching and learning, classroom enactment of beliefs, and their work experiences. I wished to gain insight into the impact of episodic memory on their beliefs and classroom practices and understand whether professional learning impacted their personal epistemological beliefs and their enactment over time. At all points in the study the researcher and the informants were involved in developing together a collaborative understanding of the informants' epistemological beliefs, the origins of these beliefs, and how they affected or were affected by the work context. Data were analyzed for significant statements, meaning units, textural and structural description, description of the core, i.e., "essence" and meanings and understandings agreed mutually between researcher and participants in the manner of hermeneutic inquiry (Appendix F).

Regular meetings, interviews, class observation related discussions, and journal exchange and annotation allowed refinement of understandings and a commonly developed interpretation of the lived experiences of the informants, true to a classical hermeneutic approach.

Situated Cognition

The role of context and community was a key factor in my study as is clear from the case-study focus outlined earlier, and the fact that the informants were entering an already established work community and culture. Their learning on the certificate course was situated, in other words, the workplace had an influence on how they constructed their reality, that is to say their cognition was situated. This implies that, unlike classical intellectualist theory which claims learning is an isolated process taking place in the minds of individuals, understanding is

determined by temporal experiences of learners' participating in expert performances (Lave & Wenger, 1991).

My inquiry, therefore, focused on informants' present constructions as they interacted as part of a formal workplace learning program where the learners were entering into an institution which had already established norms, behavior, values, relationships, and beliefs (Lave & Wenger, 1991). Learning on the course was embedded within a particular social and physical environment, which had an influence on how they interpreted their role within the school and the expectations of the teaching environment. Outside of the course they interacted with members of the teaching body, and the administration, as part of their evolving community membership. Motivation was likewise situated as informants wished to be fully participant practitioners in this new work environment.

My hermeneutic analytical approach paid careful attention to informants' processes of participating in and becoming part of an already established community of practice, and how the community influenced their beliefs and teaching practice. I incorporated insights from their interaction with the workplace environment as part of my individual analysis of each informant's journey throughout the study, and the holistic between-case analysis at the end of the study.

Hotspots

As already stated, my study set out to explore how teachers' prior epistemological beliefs impacted on their early teaching in the workplace, how beliefs changed over time as a result of learning experiences on the certificate course, and how situated cognition affected the progression of those beliefs. I realized early on in my review of the literature that teachers' beliefs, knowledge, and assumptions (BAK) have an impact on their interpretation of their workplace context and content

of the certificate course (Woods, 1996). Woods used the concept of “hotspots” in his study on teacher cognition in language teaching, an analytical device which allowed him to view teachers’ “through the lens of present and reveal aspects of teachers’ BAK and their prior experiences” (Woods, 1996, p. 204).

Inspired by Woods’ (1996) study, I looked for recurring themes in the data from each interview about informants’ prior experiences as learners. I identified certain experiences in workplace learning which lead to conflicts, viz. hotspots, to develop a synthesis of individual teachers’ BAK and their new experiences. These recurrent themes which I identified helped me establish what an informant’s propositions about teaching and learning were and how these were used in their decision making while planning and delivering their lessons. As the study progressed these ‘hotspots’ allowed me to track how individual teacher’s BAK evolved over time, which I analyzed in conjunction with the Schommer’s classification of beliefs and enactment of beliefs into naïve or complex behaviors.

Bottom-up Top-Down Processing

When applying Schommer’s (1990) framework, to be discussed in more detail in subsequent sections, I used top-down processing when assigning data to one of her twelve theorized sub-sets for categorizing epistemological beliefs. As a hermeneutic researcher I also made use of bottom-up processing where I paid close attention to semiotics (Bryman, 2008), namely how the teachers expressed their propositions about teaching and knowledge, to develop a better understanding their true feelings. During analysis I switched between these two approaches so as not to be overwhelmed by details, nor be too holistic and miss out on hidden messages in the teachers’ data.

Researcher Role and Axiology

Researchers have to understand that “participants are grounded in their history and temporality” (Denzin & Lincoln, 1994, p. 14) and be sensitive to the context where the research is conducted. To get the true thoughts and feelings of participants, a non-judgmental attitude and empathetic understanding are crucial. During interviews, a researcher needs to be “genuinely present, committed and open to participants as well as allowing meaning from one’s own experience to emerge in the conversation” (Agrey, 2014, p. 400).

The interaction of a researcher with informants and the research context creates the data for a study. The researcher in qualitative research is generally an insider, knowing the context where the research is conducted (Denzin & Lincoln, 1994; Miles & Huberman, 1994). It is important to value informants’ self-narratives, rather than viewing them instrumentally as good sources of data (Agrey, 2014). Likewise, a researcher’s own narratives are important to help create co-emergent meanings. Thus, researchers should make their orientations, predispositions, and biases explicit. In this brief section, I outline my personal axiology, namely my origins, beliefs, and context in relation to the study I conducted.

To understand interpretations of informants’ work context, I had to be from the inside, that is part of the context in which the investigation took place (Cohen et al., 2007). To uncover the constructions of meanings held by the knowers, I had to work collaboratively (Lincoln & Guba, 2013). As a reflexive insider, I critically reflected of my own bias and assumptions, and how these might have affected the research process (Mills et al., 2010). This reflexive journey was borrowed in part from my own experience as a Turkish national who grew up and pursued her primary and secondary education in Germany, but who went to university in Turkey. I have

worked as an English language teacher since 1993, and an in-service educator since 2000 on the program in which the study was conducted. This proximity helped me share “insider language” of informants and their context, as well as understand the institutional culture and its management.

I am a believer in cognitive involvement in learning through inquiry and discovery linked to meaningful, real-life situations, thus believing firmly in a constructivist approach to learning. My learning experience in Germany reflected problem-solving, inquiry, and cross-disciplinary integration of content, with limited rote learning. This encouraged my belief that there is no single truth. My professional learning opportunities further exposed me to inquiry, critical thinking, and reflection, where collaboration and collegiality were dominant amongst the team of in-service teacher educators who contributed to my development. My students have always shown difficulties with inquiry-based learning and critical thinking skills (Akşit, 2007; Özar, 2012; Şimşek, 2004), arriving as they do from a didactic system of learning, which has further engrained my constructivist beliefs.

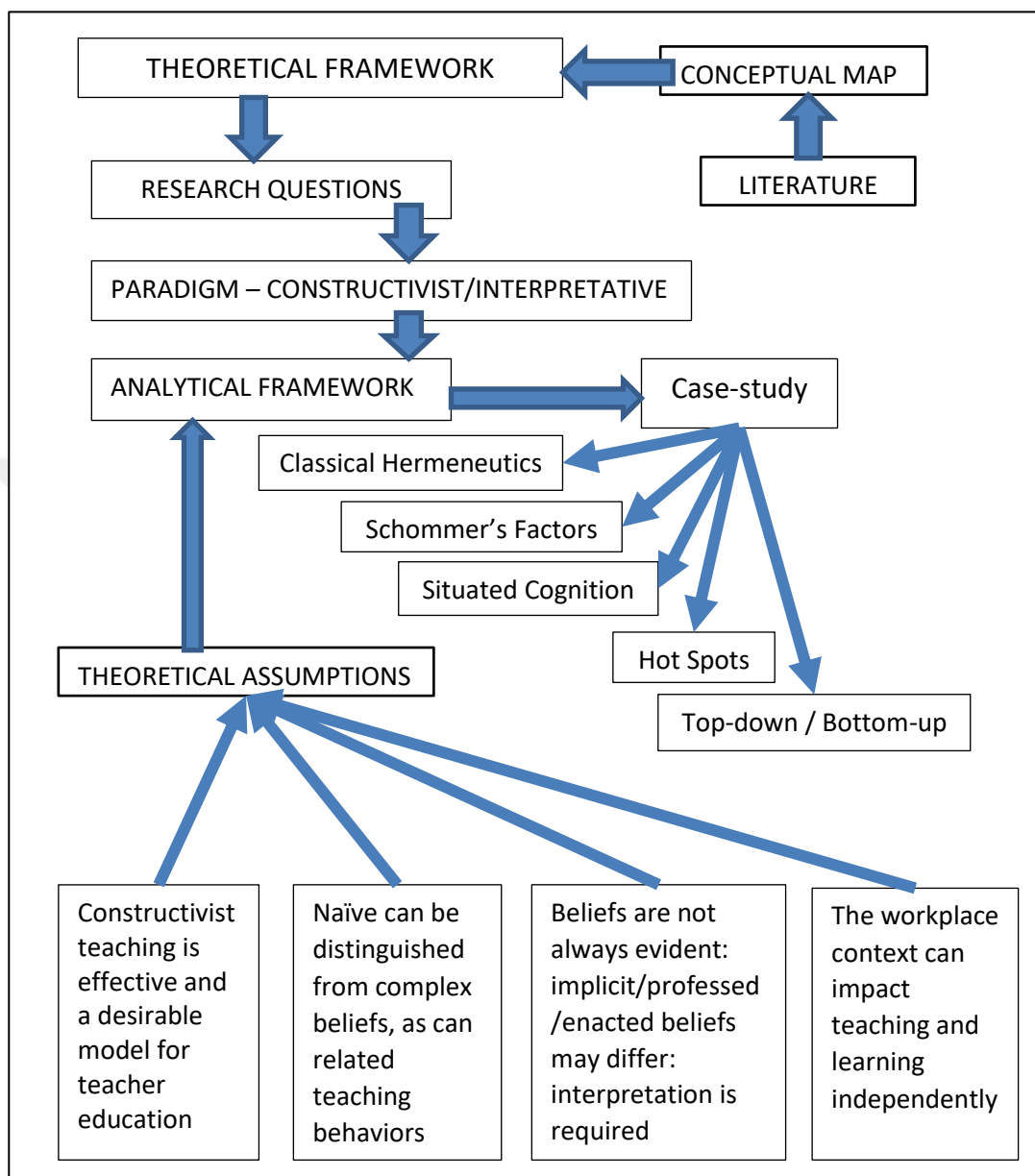
I have been a teacher educator for twenty years on formal certificate and diploma level courses in the English preparatory program, with expertise primarily in mentoring novice teachers. I believe that no single correct interpretation of classroom actions exists as reality subjectively varies from individual to individual (Frowe, 2001; Guba & Lincoln, 1994; Scotland, 2012); “there are as many realities as individuals” (Scotland, 2012, p. 11). Different people construct meaning in different ways (Crotty, 1998) based on their consciousness, rather than as one single truth. Only by being “in relation” (Storm, 1972, p. 276) with the living world can individuals develop consciousness based on experience - consciousness is subjective. I view truth within an interpretivist vision - realities are facilitated by our senses;

without consciousness, we cannot give meaning to the world. My ontological position is therefore relativism.

This realization came while collaborating with the other teacher educators. We use the same standardization procedures, but interpretations of observed teacher behavior differ as each individual experiences life differently, shaping our consciousness. But not only an individual's consciousness, but how they use language to define their reality and consciousness plays an important role. With novice language teachers I have experienced first-hand how their perception of meanings expressed through language affects their interpretation of actions. This goes some way to explaining why I believe in interpretative studies in which I need to work closely together with informants within a clear framework to mutually agree understandings and perceived truths. Figure 8 provides an overview of my research process thus far.

Schommer's Theoretical Framework as an Analytical Tool

Early studies on personal epistemological beliefs reflected a unidimensional approach which assumed developmental stages with beliefs maturing in one stage before moving on (Kitchener & King, 1981; Perry, 1968). From her syntheses of earlier studies, Schommer (1990) developed a theoretical epistemological beliefs framework, confirmed in an empirical study with university students, which posited that personal epistemological beliefs do not mature in synchrony, but are comprised of multiple beliefs, or factors, each of which may develop independently. From her work she defined five factors and twelve subsets which distinguished between naïve and sophisticated or complex personal epistemological beliefs.

Figure 8*Research Process (1) / Design and Methodology*

Secondly, Schommer's (1990, 1994, 2002) conceptualization puts naïve and complex epistemological beliefs on a continuum. Complex beliefs represent a more constructivist approach to learning, a more desirable end of the learning spectrum in the view of many. In my teacher educator role, I have noted a relationship between a constructivist approach to learning and effective teaching. I have also observed that teachers who view knowledge as complex appeared more open to change and

responded more positively on the teacher certificate course. I adopted the dichotomy between naïve and complex to monitor change in informants towards more constructivist beliefs and teaching during my study. Through my hermeneutic analytical approach, I intended to work closely with informants and interpret where they were on the complex-naïve continuum with respect to beliefs and their enactment. Moving to the more complex end of the continuum would document a positive change in personal epistemological beliefs, and/or teaching effectiveness.

Thirdly, Schommer's Epistemological Beliefs Questionnaire (EBQ) offered potential as a tool to categorize naïve and complex beliefs in order to select my informants for in-depth study. Although from a different research context, I saw the questionnaire as transformable to reflect my own research interests. So, I modified it, as mentioned in the case-study analytical framework, and, as described in detail later in this chapter, to focus on teachers' beliefs about knowledge in general, teaching and learning, and professional learning in particular (Appendix G). This was in line with my experience that complexity may vary between areas of beliefs. The survey also provided important pointers as to how to interpret epistemological beliefs in terms of the five factors and twelve subsets when analyzing data from teachers. How to interpret beliefs, either naïve or complex, was a challenge and the survey provided insight to inform my hermeneutic approach when analyzing the data collected through interviews, observations, and documentary evidence.

Fourthly, in Schommer's framework epistemological beliefs were considered as frequency distributions rather than dichotomous or on the same continuum. Individuals hold both complex and naïve beliefs on a topic. Frequency of occurrence plays a key role in the decision about complexity of beliefs, requiring an interpretative perspective, to pin down the nature of beliefs in certain areas of

knowledge, learning and teaching, or professional knowledge. As experienced in classrooms and on teacher education courses, individual teachers can display mainly complex beliefs in relation to an area of knowledge and knowing, but also display elements of a naïve belief within the same area. Schommer's subsets allow finer distinctions of beliefs under major factors; beliefs under a major epistemological belief factor, say, Simple Knowledge, may be interpreted differently, naïve or complex, using different subsets for different classroom actions, thus more closely reflecting reality, in my view.

Finally, Schommer's (2002) framework recognizes that epistemological beliefs have both direct and indirect effects, meaning that epistemological beliefs mediate learning. To illustrate the latter, in my experience those who simplify information and see knowledge as learnt in isolation are more likely to approach it as recalling facts without understanding underlying meanings and purposes. In terms of the former, in my experience when individuals have strong beliefs in Certain Knowledge, they tend to interpret any piece of information as a definite conclusion. Beliefs, therefore, shape practice, an insight which allowed me to connect beliefs to classroom practice to understand whether they reflected one another.

For the above reasons, I preferred Schommer's framework for its underlying assumption that personal epistemology and knowledge is a complex, interwoven system of beliefs which mirrors my own experience, and which I felt allowed me the scope to find meaningful patterns in the interpretation of my data.

Schommer's Analytical Framework

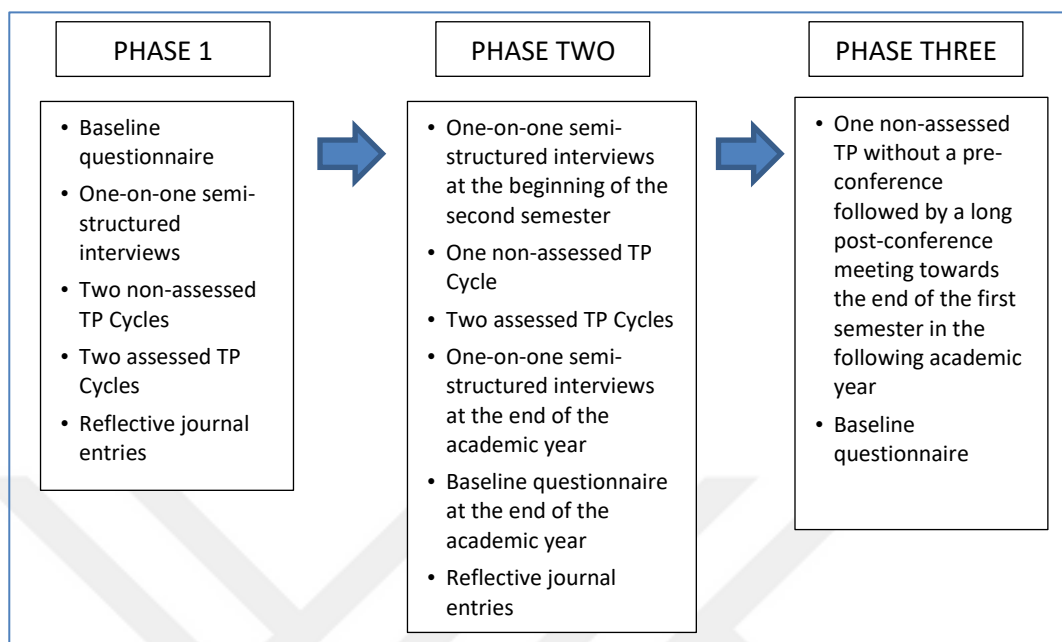
Schommer (1990) developed statements from findings on previous studies from which she posited five factors, subdivided into two or three subsets. She explored learners' epistemological beliefs related to performance on a learning task

using a 63-item, 5-point Likert-scale questionnaire, supplemented with qualitative data. Her task included reading comprehension; a content test for the reading; self-evaluation of comprehension; as well as demographic data. She investigated knowledge and knowing in relation to the five factors, in other words, how core personal epistemological beliefs shaped learning responses as measured through the five factors.

Schommer's (1990) analytical framework focused more on investigating individuals' general epistemological beliefs about knowledge and knowing. Since I wanted to research teachers' personal epistemological beliefs at the beginning of a formal training course and change over time, I was not convinced that Schommer's tasks would effectively probe core epistemological beliefs in relation to language teaching and professional learning. Similarly, her questionnaire was related to knowledge and knowing in general. As suggested in the literature, beliefs are domain specific and can vary from one domain to another (Duell & Schommer-Aikins, 2001; Elby & Hammer, 2010; Schommer, 1990, 1994b), so I adapted Schommer's (1990) analytical framework and instruments for my own study.

Adapting Schommer's Framework

I decided to collect both mainly qualitative data, with some quantitative, too, from informants at different time intervals, divided my study into three phases (Figure 9). The first phase covered the start of the training course to the end of the first semester, when teachers were new to the context, with some new to the profession; the second phase, the second semester of the academic year from February to July, at the end of which informants completed the certificate course; the third phase, the first semester of the academic year following completion of the course. I included the third phase to follow up on change in beliefs after pressure and

Figure 9*Overview of Data Collection and Time Periods*

expectations from the certificate course had been lifted. Teachers may act a certain way in response to the demands of courses or school context, which would not have necessarily indicated a change in beliefs. Once pressure is lifted, they may revert to former classroom habits (Elby & Hammer, 2010). I adapted Schommer's (1990) Epistemological Beliefs Questionnaire as a baseline for the selection of informants from the course cohort, as discussed later in this chapter.

Interpreting Schommer's Five Factors and Twelve Subsets

I found developing an understanding of the five factors and twelve subsets a demanding process. At the outset, I analyzed Schommer's statements carefully, discussing my understandings with my supervisor and an experienced in-service teacher educator, to ensure a standardized interpretation of factors and subsets as regards personal epistemology when applied to beliefs about knowledge and knowing, language learning and teaching, and professional learning. I then defined, writing down under each subset, how I would interpret these understandings in

practical terms (cf. Appendix B). These definitions constituted the starting point for the analysis of interview data, observation cycles, informant lesson plans, reflection on lesson delivery, and journal entries.

After many unsatisfactory attempts at data coding, I returned to my definition statements to deepen my understanding of the factors and subsets. It became apparent to me that sub-themes existed within subsets and I tried to code my data accordingly (Appendix H). This made the data analysis even more complicated which forced my return to the literature and further reading, which gave me a better grasp of the factors and subsets, how Schommer derived the factors, and how they inter-related. I then amended my initial interpretation of Schommer's framework, with confirmatory discussions with my supervisor and five experienced teacher educators, both individually and in groups.

Below I provide my personal interpretation of the five factors and subsets, based on corroboration and a detailed reading of Schommer, under the headings of her five factors, with subsets referred to by their acronyms, as displayed in Table 6. Under each factor I discuss how it was interpreted by me in practice for knowledge and knowing in general, language learning and teaching, and professional learning when informants were teaching young adults, 18 to 20 years of age, in an English language preparatory program.

It is important to note that the first three factors and six subsets relate to the Source, Structure, and Stability of Knowledge, associated with the episteme, i.e., underlying understandings about the nature of knowledge and knowing. The final two factors and six subsets are more about the process of learning (speed and control), which may be prone to vary more easily than factors concerned with fundamental, deeply seated epistemological beliefs about the nature of knowledge.

Table 6*Areas of Knowledge, Factors, Subsets, and Three Areas of Belief*

Two Areas of Knowledge	Five Factors	Twelve Subsets	Three Areas of Beliefs
Source, Structure, and Stability of Knowledge (SSSK) 1-6	Simple Knowledge (SK) 1+2	1 Seek Single Answer (SSA)	Knowledge and Knowing (KK)
		2 Avoid Integration (AI)	
	Certain Knowledge (CK) 3+4	3 Avoid Ambiguity (AA)	
		4 Knowledge is Certain (KC)	
	Omniscient Authority (OA) 5+6	5 Do not Criticize Authority (DCA)	
		6 Depend on Authority (DA)	
Speed and Control of Learning (SCL) 7-12	Innate Ability (IA) 7+8+9	7 Can't Learn how to Learn (CLHL)	Language Learning and Teaching (LLT)
		8 Success is Unrelated to Hard Work (HW)	
		9 Ability to Learn is Innate (ALI)	
	Quick Learning (QL) 10+11+12	10 Learning is Quick (LQ)	Professional Learning (PL)
		11 Learn for the First Time (LFT)	
		12 Concentrated Effort is a Waste of Time (WT)	

Note. Adapted from “Effects of beliefs about the nature of knowledge on comprehension,” by M. Schommer, 1990, *Journal of educational psychology*, 82(3), pp. 498-504.

Factor: Simple Knowledge (SK)

Schommer (1990) concluded that individuals who display a naive epistemological stance perceive knowledge as compartmentalized, either oversimplifying information by describing one aspect of it, or failing to draw conclusions about when such information is applicable, or both, showing little depth of understanding of concepts and their rationale without considering its applicability.

This factor was divided into two subsets evidenced by (1) focusing on a single answer (SSA) and discarding other existing possibilities, and (2) avoiding integration (AI), with individuals neither connecting to existing knowledge nor applying information to other situations.

From a naïve language learning and teaching (LLT) point of view, I interpreted this factor as teachers presenting knowledge at surface level, with little focus on meaning and use; form driven lessons encouraging students to memorize definitions or grammatical forms without contextualizing meaning. A teacher would avoid comparative analysis of structures, or integrating language systems with skills, with activities exhibiting a challenge level below the proficiency level of students.

In professional learning (PL), a naïve stance would resist new ideas or varying teaching style to match a class profile, preferring not to receive suggestions, but rather waiting to be told a style to suit the circumstances because they do not believe in the value of critical thinking. Lesson plans would be followed to the letter, without a willingness to adapt a plan to reflect needs as they arise during a lesson. Reflection would be descriptive, without the ability to explain reasons for classroom events. A teacher would not interact with other colleagues to consult them on their experiences.

Factor: Certain Knowledge (CK):

Certain knowledge (CK) focuses on the ability to deal with uncertainty. Individuals with naïve beliefs see truth as absolute and lack the ability to deal with uncertainty of knowledge, displaying little tolerance for theorizing with an expectation to be told facts. There are two subsets under this factor: (1) avoid ambiguity (AA), namely expecting explicit clarification of everything, or presenting

knowledge as certain; (2) Knowledge is certain (KC) and unchanging, namely absolute truth can be discovered through meticulous study.

For language learning and teaching (LLT) I interpreted this factor as rigidly following a coursebook without adapting to suit needs or circumstances, or not departing from explanations in a course book but presenting everything explicitly and formulaically to avoid misunderstandings. A teacher would be unwilling to accept answers outside an answer key, even if students provided justification for their choice; they would exhibit their own truth about how to teach and be unwilling to alter their style.

For professional learning (PL), a teacher would be theory-oriented, rather than learning to put theory into practice. They would present their own interpretation of practice, finding it hard to make needed adjustments.

Factor: Omniscient Authority (OA)

This factor suggests a strong connection between family structure and upbringing as an individual's source of knowledge. For those with naïve beliefs authority comes from superiors, books, or other source of knowledge, not from personal experience or inquiry. Their responsibility is to impart knowledge, not acquire it through their own efforts, perceiving it as inappropriate to criticize information presented by an authority. The subsets were: dependence on authority (DA), and not criticizing authority (DCA).

For language learning and teaching (LLT) learners depend on the teacher and textbook as the source of knowledge. An authority, namely the teacher, would control the learning process with little importance given to discovery learning or experiential knowledge, namely hands-on learning. A teacher would provide information and approve student answers, with the learner not in a position to

question the authority, considered as “troublemakers” if they did, and course materials would not be adapted.

For professional learning course tutors would specify exactly what needed to be done, with course participants accepting and integrating feedback given, without questioning its effectiveness.

Factor: Innate Ability (IA)

Individuals with a naïve stance believe intelligence and learning ability are predetermined, and no matter how hard one tries or applies correct strategies, ability to learn cannot be changed. Therefore, there is a tendency to give up trying to learn when faced with difficulties. The factor has three subsets: (1) cannot learn how to learn (CLHL); (2) success is unrelated to hard work (HW); and (3) the ability to learn is innate (ALI).

For language learning and teaching (LLT) I interpreted this as a teacher not incorporating strategy training or modelling for learners. This would involve conducting lesson with a focus on the stronger students, with no attempt to modify stages to involve weaker learners by providing scaffolding or individual support because the teacher does not believe in the possibility that weaker students can learn.

In terms of professional learning (PL) a naïve stance would exhibit helpless behavior when challenged by tutors, with an unwillingness to leave a comfort zone or think outside the box.

Factor: Quick Learning (QL)

Finally, Schommer saw a strong relationship between quick learning (QL) and simple knowledge (SK). If knowledge is simple, then learning is considered a quick process.

The three subsets are learning is quick (LQ), learn first time (LFT), and concentrated effort is a waste of time (WT). Learning is perceived as a quick process when a learning objective is first encountered. If understanding did not happen the first time, it is believed not to be meaningful to continue trying. A similar belief characteristic would be applied to beliefs about language learning and teaching (LLT), and professional learning (PL).

Research Methods and Analysis

The purpose of data gathering is “to gain the ability to construct reality in ways that are consistent and compatible with the constructions of setting’s inhabitants” (Erlandson et al., 1993, p. 81). The data gathered for this study were largely qualitative, supplemented with a beliefs questionnaire for purposive sampling. The research design was modified based on recommendations from the PhD proposal meeting in October 2015 to include data from reflective journals. The methodology, methods and analysis are discussed in detail in what follows.

Beliefs Inventory Questionnaire – Quantitative Data

I developed a Likert-scaled beliefs inventory questionnaire to select informants for the case-study based on their personal epistemological beliefs profile. It was not intended to measure change in epistemological beliefs using inferential statistics. Nonetheless, time was spent ensuring it was constructed using quality principles for such measures. It included thirty-seven statements on Knowledge and Knowing (Appendix I), forty-two on Language Learning and Teaching (Appendix J), and thirty-seven on Professional Learning (Appendix K). Sixty-three items were comparable to Schommer’s original items and those adapted from Schommer’s study by Dunkle et al. (1993). Schommer designed her questionnaire for university

students in social science (psychology), or science (biology), whereas I designed mine for adult teacher informants.

I administered the questionnaire at the beginning and end of the certificate course, and the end of the study. I eliminated nine statements in Schommer's questionnaire related to reading comprehension, three on being successful as a school student, and four learning science, thus reducing to forty-seven items about knowledge and knowing. The literature suggests that beliefs are domain specific, varying from one domain to another (Elby & Hammer, 2004; Schommer, 1990, 1994b). In line with my research intentions, I added two sets of items to my survey, epistemological beliefs about language learning and teaching and professional learning. I adapted eleven statements from Schommer's questionnaire about Knowledge and Knowing as part of the Language Learning and Teaching section. Examples of how the statements were adapted to my inventory for language learning and teaching are illustrated in Table 7.

After administering the survey, a Cronbach Alpha test using SPSS 20™ was used to check for reliability, i.e., the extent to which the items under each factor "hang together" (Pallant, 2007; Peterson, 1994). On my first attempt, most Cronbach Alpha values were not acceptable: $\alpha < 0.8$ (Pallant, 2007) under the three focus areas, knowledge and knowing, language learning and teaching, and professional learning. I assumed this was due to the number of subsets under each factor, so I computed Cronbach Alpha again focusing on each subset independently, but values remained small.

Through the literature I understood that with a small number of items on a scale, a low Cronbach Alpha such as $\alpha = 0.5$ is common. Briggs and Cheek (1986) suggested reporting the mean inter-item correlation for the questionnaire items, i.e.,

Table 7

Statements from Schommer's (1990) Epistemological Beliefs Questionnaire

Schommer's (1990) EBQ		Beliefs Inventory Questionnaire (LLT)	
7.	I often wonder how much my teachers really know (DCA)	56.	We should not question language experts' knowledge of the language
8.	The potential to learn is established at birth (ALI)	51.	Good language learners are born with the ability to learn foreign languages quickly (ALI)
10.	Successful students understand things quickly (LQ)	47.	Successful learners learn the foreign language quickly. (LFT)
14.	I try my best to combine information across chapters or even across classes (AI)	61.	Learning a foreign language is easier when learning is divided into distinct areas (grammar, vocabulary, pronunciation, individual skills, etc.) (AI)
28.	Everyone needs to learn how to learn. (ALI)	74.	Teachers should explain to the learners how they need to study. (CLHL)

Note. Adapted from "Effects of beliefs about the nature of knowledge on comprehension," by M. Schommer, 1990, *Journal of educational psychology*, 82(3), pp. 498-504.

the degree to which each item correlates with the total score, recommending an ideal range varying from 0.2 to 0.4. However, the mean inter-item correlation scores for some subsets remained low. Therefore, I computed the correlation for each test item with the total test score, and, if the item score was close to 0, I placed it under a possible alternative subset and computed the inter-item correlation again. These items moved in the main to a different subset within the same factor:

Seventeen statements were moved to reach an acceptable inter-item correlation value. When examining these statements, I felt the change was meaningful as the literature on Schommer's framework revealed different subsets have an impact on one another. I deleted five statements from the questionnaire

(Table 8) as their inter-item correlation values were close to 0, despite moving to alternative subsets.

Table 9 provides Cronbach's Coefficient Alpha and inter-item correlation values for the five factors (in bold), and twelve subsets. Subsets LQ and WT under knowledge and Knowing, and the subset DCA under Language Learning and Teaching had one statement only, they do not have a Cronbach Alpha coefficient or inter-item correlation value.

Table 8

Statements Deleted from the Inventory Due to Low Inter-Item Correlations

	Statement	Area ^a	Factor	Subset
13.	Parents should teach their children all there is to know about life	KK	OA	DA
27.	Children should be allowed to question their parents' authority	KK	OA	DCA
72.	Learning centers do not contribute to learning the target language	LLT	IA	CLHL
102.	To develop professionally, one needs to know all the theories of learning and teaching	PL	SK	SSA
110.	It takes a lot of time to establish a teaching style that is in line with the expectations of the school	PL	QL	LQ

Note. Adapted from “Effects of beliefs about the nature of knowledge on comprehension,” by M. Schommer, 1990, *Journal of educational psychology*, 82(3), pp. 498-504.

^a For an explanation of the abbreviations under area, factor, subset cf. Table 6

Selecting Informants for In-Depth Study

The five-point Likert-scale beliefs inventory consisted of 116 statements, 34 of which were reverse statements, adjusted accordingly. The questionnaire was administered at the beginning of the certificate course to select informants. Mean

scores were computed for the five factors and subsets, averaged for knowledge and knowing, language learning and teaching, and professional learning, using SPSS 20. The same procedure was applied to each administrations of the instrument.

Table 9

Cronbach's Coefficient Alpha and Inter-Item Correlation Values

Factor	Subset	Knowledge and Knowing		Language Learning and Teaching		Professional Learning	
		CA	IIC	CA	IIC	CA	IIC
SK		.557	.144	.423	.095	.597	.181
	SSA	.583	.228	.476	.189	.613	.245
	AI	.474	.238	.564	.294	.351	.159
CK		.434	.081	.438	.073	.515	.246
	AA	.496	.332	.525	.172	.407	.310
	KC	.627	.188	.486	.226	.708	.450
OA		.078	.018	.461	.103	.636	.206
	DCA	.415	.193	-	-	.580	.447
	DA	.397	.274	.525	.186	.464	.175
IA		.758	.253	.666	.137	.460	.129
	CLHL	.310	.189	.334	.221	.360	.174
	HW	.577	.259	.713	.382	.340	.208
	ALI	.687	.449	.627	.262	.256	.158
QL		.356	.172	.431	.113	.192	.093
	LQ	-	-	.487	.341	.581	.410
	LFT	.350	.282	.463	.208	.404	.195
	WT	-	-	.365	.228	.259	.154

Note. CA = Cronbach's Coefficient Alpha value; IIC = inter-item correlation mean score. Explanation of the abbreviations in Table 6.

I chose four informants for detailed study from the cohort of 24 potential candidates (Table 10). Purposive sampling does not simply focus on similarities for generalizations but details the “many specifics that give the context its unique flavor”

(Guba & Lincoln, 1985, p. 201). The entire cohort was in its first year in the preparatory program. Selection was based on representativeness of general characteristics of the group (Cohen et al., 2007) in terms of nationality, years of teaching, and epistemological beliefs as determined by the questionnaire. A mean score of 1.00 indicated the most “complex” beliefs and a mean score of 5.00 the most “naïve” beliefs. The mean scores were graphed against years of teaching experience, and nationality, which revealed a spread of potential candidates, represented visually in Figure 10.

Of the 4 informants selected using Figure 10 and Table 13 there was: one national teacher (Deniz) with “complex” beliefs; one national (Beste) and one international (Alice) showing “average” beliefs, a Likert average score of 2.50 out of 5.00; and one national teacher (Elif) with “naïve” beliefs. Three informants had little teaching experience prior to the course (Deniz, Beste, and Alice); Elif had a number of years prior experience. Informants chose their own pseudonyms for the study.

Documentary Analysis

Analysis of data in constructivist-interpretative research is described as “organizing, accounting for and explaining of the data and making sense of the data in terms of the respondents’ definitions of the situation, noting patterns, themes, categories and regularities” (Cohen et al., 2000 p. 147). Creswell’s (2007) guidelines provided a simple framework for the analysis of my documentary data (Table 11). I used categorical aggregation to identify meanings (Stake, 1995) relevant to my research questions, drawing on Schommer’s factors and subsets. I also used indirect interpretation to extract meaning related to informant beliefs, without immediately looking for reoccurring patterns. Once relevant meanings had been identified in one document, I searched for congruence or divergence in other documentary data which

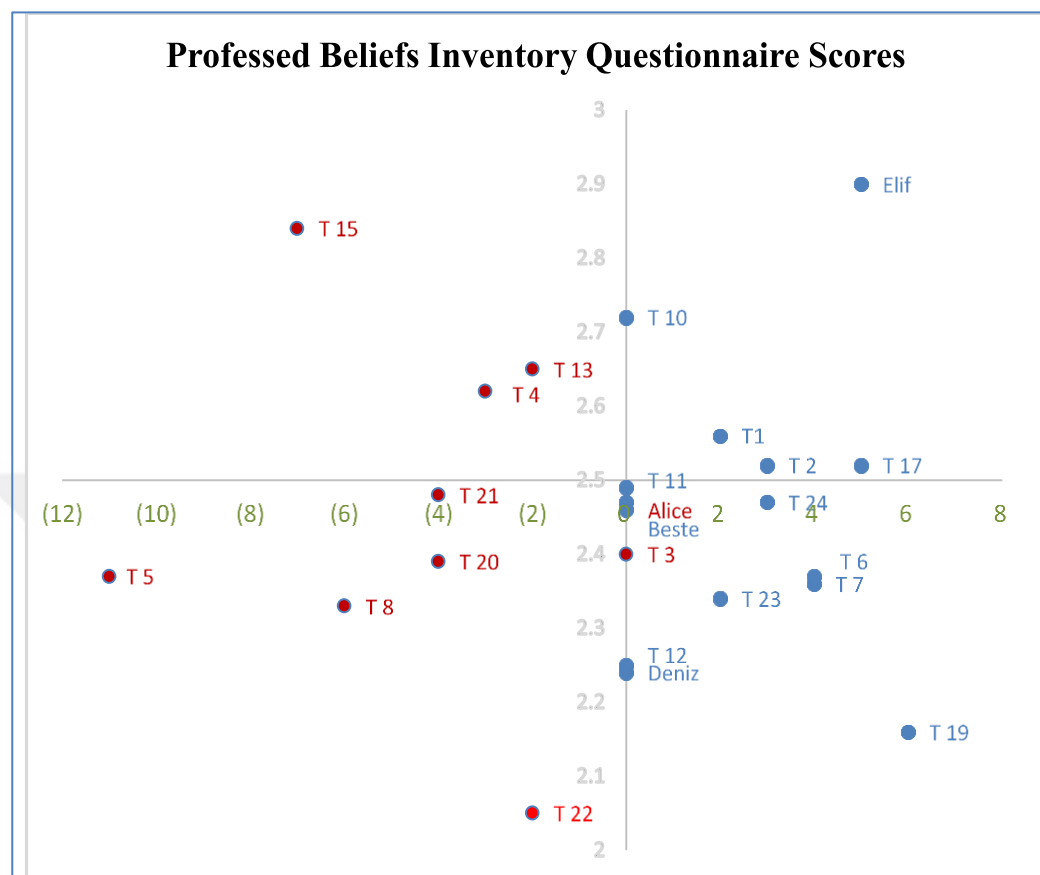
Table 10*Scores of all Certificate Candidates on the Beliefs Inventory Questionnaire*

Candidates	Knowledge & Knowing Mean Score	Language Learning & Teaching Mean Score	Professional Learning Mean Score	Mean Score per Candidate	Nationality	BA	MA	Years of Service	Taught abroad
T 22	1.92	2.16	2.06	2.05	2	2	2	2	1
T 19	2.35	2.14	2.00	2.16	1	1	1	6	1
T 9	2.35	2.35	2.03	2.24	1	1	0	0	0
T 12	2.30	2.44	2.00	2.25	1	1	0	0	1
T 8	2.35	2.77	1.86	2.33	5	2	0	6	1
T 23	2.32	2.44	2.25	2.34	1	2	2	2	0
T 7	2.49	2.28	2.31	2.36	1	2	1	4	0
T 5	2.43	2.33	2.36	2.37	4	2	1	11	1
T 6	2.43	2.42	2.25	2.37	1	2	0	4	0
T 20	2.76	2.40	2.03	2.39	3	2	0	4	1
T 3	2.38	2.56	2.28	2.40	2	2	1	0	0
T 16	2.57	2.63	2.19	2.46	2	1	0	0	0
T 14	2.65	2.56	2.19	2.47	1	1	0	0	1
T 24	2.54	2.65	2.22	2.47	1	1	0	3	0
T 21	2.62	2.42	2.39	2.48	3	2	0	4	1
T 11	2.65	2.65	2.17	2.49	1	1	0	0	1
T 2	2.57	2.58	2.42	2.52	1	2	0	3	1
T 17	2.68	2.47	2.42	2.52	1	2	2	5	0
T 1	2.73	2.51	2.44	2.56	1	2	0	2	0
T 4	2.81	2.81	2.22	2.62	3	2	0	3	1
T 13	2.78	2.79	2.36	2.65	3	2	0	2	0
T 10	2.84	2.86	2.47	2.72	1	1	0	0	1
T 15	2.81	3.02	2.69	2.84	2	2	2	7	1
T 18	3.22	2.91	2.58	2.90	1	1	0	5	0
Aver.	2.56	2.55	2.27	2.46					

Note. Nationality: 1= TR; 2 = UK; 3= USA; 4 = CA; 5 = AU. BA: 1 = ELT; 2 = non-ELT. MA: 0 = no MA; 1= ELT; 2 = non-ELT. Taught abroad: 0 = No; 1 = Yes.

Figure 10

Inventory Scores of Epistemological Beliefs of Group (N=24)



Note. International staff in segments to the left, national staff to the right. The horizontal axis shows years of experience, starting from 0 in both directions. The vertical axis shows epistemological belief scores, more complex towards the bottom, more naïve towards the top. Mean belief values for the 24 teachers are in the range of 2.00, complex, to 3.00 naïve

had been gathered around the same time. I reduced and summarized my data in tables, leaning on Woods' (1996) analytical framework which uses within-case theme analysis, hypothesizing beliefs from cues supported or contradicted by other cues. Informant beliefs are hypotheses as they may not reflect actual beliefs. Nonetheless, examining data over a longer period and in different circumstances, structured patterns of beliefs emerge.

Table 11*Data Analysis and Representation*

Data analysis and representation	
Data managing	Create and organize files for data
Reading, and memoing	Read through text, make margin notes, form initial codes
Describing	Describe the case in its context
Classifying	Use categorical aggregation to establish themes or patterns
Interpreting	Use direct interpretation Develop naturalistic generalization
Representing, visualization	Present in-depth picture of the case using narrative, tables and figures

Note. From *Qualitative inquiry and research design: choosing among five approaches* (2nd ed.) by J.W. Creswell, 2007, Sage Publications. pp. 156-157.

My analytical framework turned around an ongoing relationship with informants through interviews and meetings during the case-study. Documentary analysis was an integral part of the hermeneutic approach adopted for analysis of data and insights were incorporated into the research as it progressed. Here the types of documentary evidence I collected are discussed briefly prior to moving onto a detailed discussion of the semi-structured interview process at the heart of the case-study's analytical framework. Documentary instruments which I did not use as I had intended are also mentioned.

Teaching Practice Observations and Documents

Reflective Journals

Reflective journals offer a means to explore beliefs (Borg, 1998). Personal constructs are established through classroom practice, reading, observing of others, and exchanging ideas with colleagues, which change a teacher's values and concepts

(Francis, 1995). The reflective journals described informants' feelings about the content and interpretation of certificate course sessions, as well as the social context. Through them I aimed to gain more insight into how subject matter knowledge and beliefs translated into teaching practice.

Informants agreed to write journal either as entries in notebooks provided for the purpose, or electronically. Prompts for weekly entries were purposely left vague so as not to influence responses (Appendix L), but towards the end of the first semester Deniz, Elif and Alice reported difficulty as prompts were too vague. More guidance was provided electronically at the beginning of Phase two (Appendix M). One responded electronically; three preferred paper. All agreed to submit journal entries bi-weekly but was not always feasible due to workload as well as course demands.

I coded journal entries by hand in their notebooks or on the printed electronic copies. The dates of journal entries allowed me to code using factors and subsets for phases one and two separately. I triangulated findings with interviews and lesson observations, and also sought to understand how the course, and their interaction with the work context influenced day-to-day classroom practice.

Observation Checklists

In addition to the formal teaching practice assessment criteria on the certificate course, I developed an observation checklist with descriptors/statements to relate Schommer's (1990) factors to observable teaching behavior. I wrote statements illustrating specific descriptors of teaching practice seen from a naïve and a complex perspective, separated by continuum using a 10-point scale which allowed observers to situate what they saw in the classroom as either more naïve or more complex (Appendix E). Users evaluated a teacher's classroom behavior on its closeness to the

relevant descriptor. Certificate course tutors were consulted for opinions and agreement during the instrument's design. I had planned to use these instruments in joint classroom observations with another tutor, completing the form independently and coming together for cross-checking and analysis. Unfortunately, joint observations could not always be scheduled as intended, and few completed checklists were returned.

Peer Observation Reports

I had aimed to focus on five of eight completed peer observation reports on: instructions and concept checking questions; teaching receptive skills; teaching grammar; teaching vocabulary; and teaching productive skills. My thought was that these tasks would reveal personal beliefs about the classroom practice, but I soon realized that they turned out to be mainly descriptions, without much reflection on effectiveness of their own classroom practice, or articulation of specific learning points. With the consent of my supervisory committee, I left peer observation reports out of my data set.

Assignments

I intended using first drafts of course methodology assignments to collect additional data and perspectives on informants' personal epistemological beliefs. However, when analyzing them I saw that they contributed little to my understanding of their beliefs. Assignments were connected to teaching practice lessons for which detailed feedback had been given, so I took the decision to eliminate them from my data analysis and focus mainly on data from interviews, observations, and reflective journals.

Semi-Structured Interviews and Analysis

Vertical Analysis of Embedded Cases

Inter-view is where two or more people interested in the same topic interchange views (Kvale, 1996, as cited in Cohen et al., 2007), highlighting human interaction for knowledge production and the social situated-ness of research data. Formal semi-structured, one-on-one interviews took place three times during the study for each of the informants and were designed to be “essentially heuristic and seek to develop hypotheses rather than to collect facts and numbers” (Cohen et al., 2007, p. 354). While reviewing the literature, I had noted down interview questions that researchers such as Hofer (2002), King and Kitchener (2002), Baxter Magolda (2002), Fitzgerald and Cunningham (2002), Bendixen (2002), Kuhn and Weinstock (2002) applied in their studies. Their sample questions helped me stay focused, but at the same time personalize the interviews to reflect specific informant characteristics (cf. Appendix N).

In the initial interview I focused on eliciting demographic data on each informant’s educational life, the instruction they were exposed to, learning strategies, and information about family background. I also explored with them areas that stood out in their survey results. I inquired into examples from their professional lives and how they responded, or would respond, to certain situations. In the second and third interviews I referred back to performances from teaching practice observations to seminars on the course, and to learning points from their reflective journals. I sought clarification of their beliefs with a view to relating them to the five factors and subsets, but Schommer’s factors and subsets were never referred to explicitly. I guided our conversations using my chosen hermeneutic, interpretative analytical approach (Appendix F) to develop an understanding, in common with them, of their

implicit belief system, and its manifestation in their classroom enactment. As the study developed, I built on previous interview discussions and post-observation meetings, field notes, document analysis of diaries and other connections I had had with them on the certificate course, but particularly on their previous experiences as a learner.

Each formal interview lasted approximately fifty minutes and was recorded and transcribed. I emailed the transcribed text to each informant after each interview cycle to get their response, requesting any additions they wished to make to the text we had developed jointly. After transcription, I listened to all audio files a number of times, ensuring I had not omitted relevant data, cross referencing with the other data available, searching for new perspectives and understandings that might arise from the data, noting points to raise in the next interview (Appendix O).

Prior to undertaking the interpretation and coding of data, I developed written understandings of what complex and naïve beliefs looked like in practice under each of the factors and subsets. I wrote in bullet points what these beliefs would be like from a naïve perspective in relation to knowledge and knowing, language learning and teaching, and professional learning (cf. Appendix A). I kept this working document in front of me at all the times to ensure that, as I interpreted the text and beliefs arising from the texts, I was able to allocate them to the right factor and subset as well as to one side or other of the naïve-complex continuum. I then coded data from each interview to reflect each phase, and ascribed utterances as instances which illustrated either complex beliefs or naïve beliefs on one of Schommer's five factors and corresponding subsets.

Pauses, sentence stress, intonation, laughter were important signs and signals which helped me as the hermeneutic researcher interpret the relationship of

utterances to the broader developing picture of each informant's belief system. I paid particular attention to spoken data giving insights into how beliefs might have changed after informants' classroom experiences, interaction with experienced colleagues, or meeting the requirements of the certificate course. I sometimes distanced myself from the coded data for several days, revisiting it to ensure consistent interpretation.

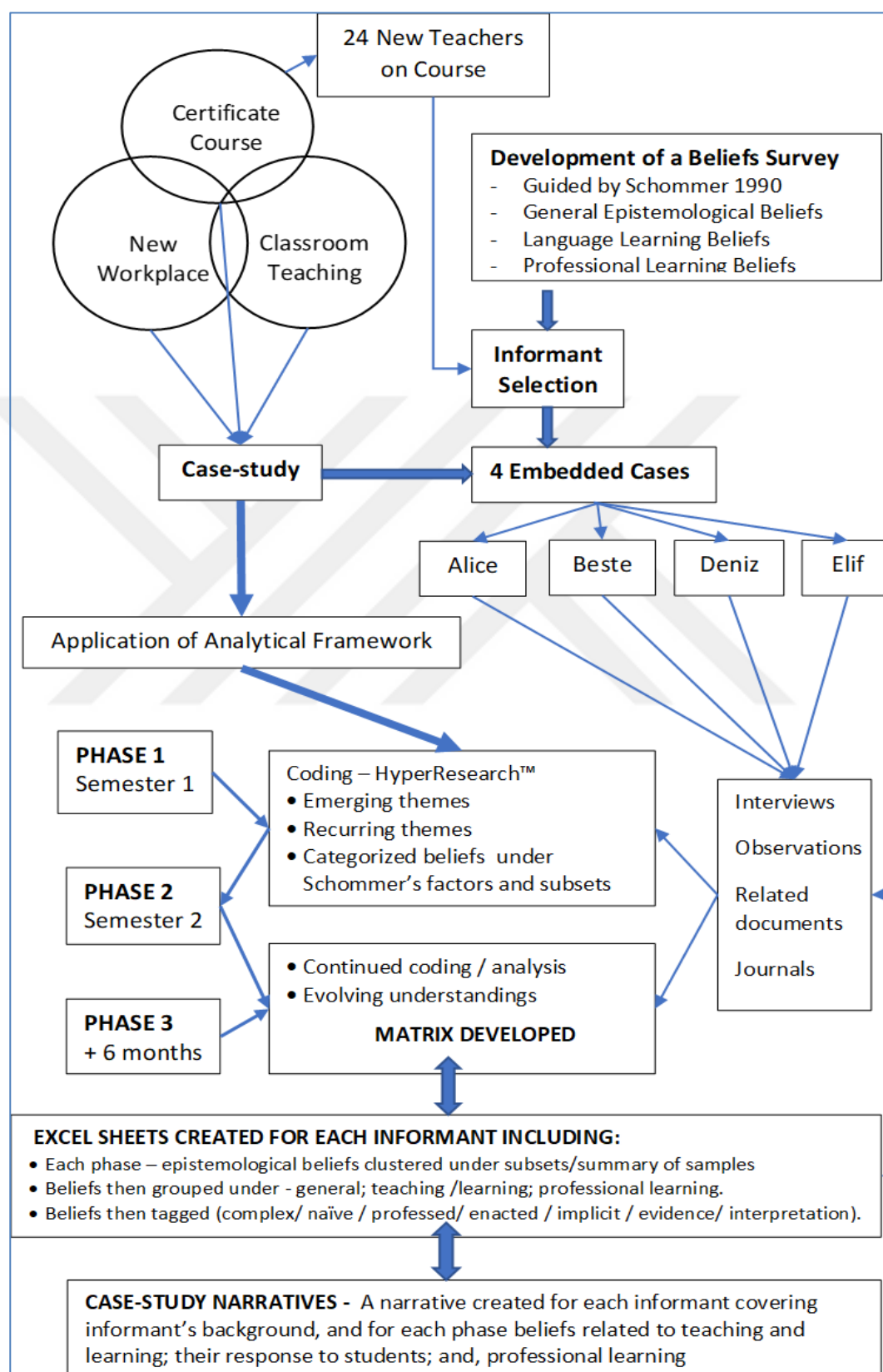
I compiled the coded data under subsets into a matrix table for each informant for each phase. I highlighted the key parts in the coded data to show the evidence as to why I applied a particular subset code. In addition, I tried to interpret whether the coded beliefs were part of the teachers' implicit or professed belief by making reference to their prior learning experiences. I then wrote summarizing comments and conclusions as to whether an informant held naïve or complex beliefs, with reference to my analytical framework, taking account of the frequency of occurrence of certain beliefs, as suggested in the literature (Schommer, 2000). I cross-referenced my interpretation of the development of the informants' personal epistemologies over the phases of the study with data from my other sources, mainly classroom observation documents, and informant journal entries. At one point, however, I became bogged down, realizing that the process had become wordy and repetitive, confirmed by feedback from jury members during my December 2018 progress meeting.

As a result, I consulted Dr Farber Lane, from the Graduate School of Education, for a further perspective on my coding and interpretation. I talked her through my understanding of Schommer's factors and subsets, with examples of findings under Schommer's framework related to one of my research informants. Dr Lane connected in my mind the instruction my informant was exposed to during

school years, their response to other student attitudes to learning, how they delivered lessons, and their openness to new learning provided through the course.

As a result of my consultation and reflection I decided that my case-study narratives should contain a detailed description of the demographic profile of each informant, to include learning style, type of instruction they received in school, and other pertinent information to develop an in-depth understanding of core beliefs and their origin. I then decided to follow the demographic data with three detailed narratives, one for each phase of the study to include the following headings: teaching practice; response to students (and their learning); and professional learning. To achieve this, I started out by using the data I had prepared in matrix format from interviews, teaching practice cycles, and other documentation, clustered under subsets. I then summarized and put each belief from the matrix table into four EXCEL™ sheets for each informant, to which I added: the name of the factor and subset; the belief which each subset referred to in practice; where the information came from, whether interview, teaching practice documentation, or journals; whether based on interpretation or evidence; whether the belief was professed or implicit.

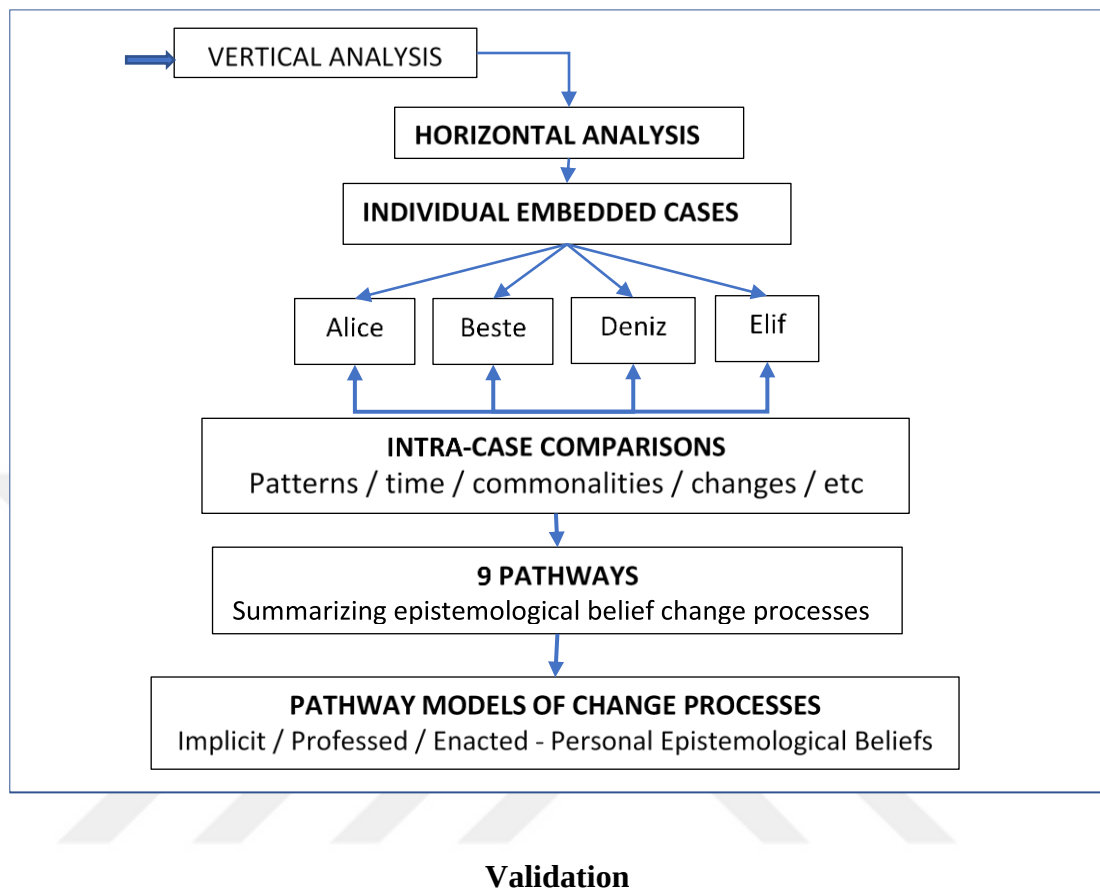
The analysis in these four EXCEL™ sheets provided the data for the writing of the vertical analysis for each informant presented in Chapter 4. The written analysis in the narratives gives a detailed description of the origin of beliefs of the informants based on my hermeneutic interpretation and coding, followed by how these beliefs developed over the three phases of the study in relation to practice and distinguishing whether beliefs were complex or naïve, and whether implicit, professed, or enacted. Each informant followed a different route through the certificate course as is evidenced in the individual narratives of the four embedded subunits in the study. The methods process is summarized in Figure 11.

Figure 11*Research Process (2) / Case-study Methods - Vertical Analysis*

Horizontal Analysis of the Embedded Subunits

The analytical framework sought common characteristics across the embedded cases with a view to distinguishing patterns which might deliver insights into similarities in how informant beliefs developed over the course of the study. With a view to revealing such commonalities the four individual vertical analyses were screened for patterns in implicit, professed, and enacted beliefs over each phase of the study, and whether these beliefs at each of the three stages were either naïve or complex. The analysis revealed a number of pathways which showed patterns of progression of beliefs across informants as they negotiated the certificate course and the first 18 months in the workplace (Figure 12).

The patterns all began with implicit beliefs as this reflected the starting point of the study and my initial interview from which I interpreted the implicit beliefs of participants using their episodic memories of early educational and other experiences. Some implicit beliefs reflected naïve personal epistemologies, others more complex. I then looked at patterns in the classroom teaching of the four informants to interpret whether their initial beliefs persisted or not in the way they taught in the classroom. I then looked at how the interaction with the certificate course impacted on their professed beliefs, and whether their classroom teaching changed as a result of the course. Finally, I looked at whether the common belief patterns had changed in the long term, what factors helped or hindered change, with potential reasons as to why the pattern evolved the way it did. All this was against the backdrop of time which was a factor also explored in the development of the pathways, in other words whether changes in beliefs and practice were faster or slower according to patterns characteristics (Figure 12).

Figure 12*Research Process (3) / Case-study Methods - Horizontal Analysis*

A positivist paradigm assumes one external reality, a misleading assumption if applied to qualitative case-studies (Creswell, 2012), which focus on interpreting meaning in unique, context-bound studies. Trustworthiness is a more appropriate validity measure for qualitative studies, defined as “credibility” for internal validity, “transferability” for external validity, “dependability” for reliability, and “conformability” for objectivity.

Credibility deals with the question how congruent the findings with reality are (Shenton, 2004). Understanding phenomena of interest through informants’ eyes is crucial as is selecting appropriate methods to ensure trustworthiness. These include: the option to refuse to participate; iterative questioning to elicit detailed data; frequent debriefing sessions with a supervisor; reflective commentary in a

researcher diary; member checks; and thick description of phenomena (Shenton, 2004).

For this study, I sent interview transcriptions to each informant to confirm what was said and meant, with an opportunity to adjust or add to their script. While coding I held regular supervisor meetings to discuss my data interpretation. I openly presented my methods for categorization of informant beliefs. I met with a retired, seasoned in-service teacher educator from whom I sought confirmation of my interpretation of factors and subsets applied to informants' reflection and classroom practice. After finalizing the vertical analysis of informant beliefs, I sent my interpretation to each informant to garner insights from their own interpretation of my findings.

Transferability describes the extent to which qualitative research results are applicable to other contexts or situations (Lincoln & Guba, 1985). It is the researcher's responsibility to provide sufficient contextual information, and thick description of the phenomenon being investigated, to enable readers to make such a transfer (Shenton, 2004). I described in detail demographics and background information about informants, with direct quotes from transcriptions and diary entries to help readers visualize informants' individual experiences.

Quantitative studies rely on replicability, whereas dependability highlights the need to consider the ever-changing research context (Lincoln & Guba, 1985). Changes occurring in the setting and the manner in which they affect the flow of the study (Lincoln & Guba, 1994) should be reported in detail to enable future researchers to repeat the work (Shenton, 2004). When reporting findings, I constantly bore in mind Phase One and informants' demographics. When looking for change I analyzed statements carefully, looked at the general picture in terms of course

content sessions and course requirements completed until that point. Since I was an insider researcher, I also made connections to the general atmosphere on the training course, and the school context and culture around that time.

A qualitative researcher considers conformability rather than objectivity in establishing the value of data (Creswell, 2007). Measures are needed to ensure that findings are the result of participants' experiences rather than the beliefs and preferences of a researcher. Denzin and Lincoln (1994) emphasize the importance of triangulation and mixing methods to reduce potential bias. Researchers need to admit their own predispositions (Miles & Huberman, 1984) such as beliefs underpinning decisions made and methods adopted. To this end, I reflected on my axiology in terms of my background and beliefs about teaching, learning and in-service teacher education. I did not base my conclusions on one single data source but sought to cross-reference with data from interviews, the beliefs inventory questionnaire, reflective journals, and TP documents. Conclusions were also shared with informants for a reality check, and with outsiders.

Ethical Issues

As stated in Creswell (2007), a qualitative researcher encounters many ethical issues during data collection in the field, in analysis, and in writing up. After the proposal meeting on 26.10.15, I completed necessary documentation and received approval from my university's ethics committee. Copies of the approval letter and consent form are in Appendices P and Q. After ethical approval, the consent form (Appendix Q) was signed by selected informants, guaranteeing anonymity and no impact on coursework or assessment. In-service educators ensure standardized, unbiased supervision, through double marking of written work and two or more tutors assessing TPs. Informants had the possibility to drop out at any point in the

study. Prior to interviews, a statement was read to each interviewee, which they were asked to sign, stating that participation was voluntary, names would remain confidential, they could refuse to answer question, and could drop out at any point. Additionally, they were informed that all documents, including reflective journal notebooks, would be destroyed upon completion of the research.



CHAPTER 4 RESULTS

Introduction

Chapter 3 outlined theoretical and analytical frameworks and the methodology to be employed for understanding changes over time in the epistemological beliefs of four informants during their transition to a new teaching context and, in some cases, the profession. Chapter 4 is concerned with an analysis of the research questions, for each of four informants, based on interview data, classroom observations, reflective journals, in-service certificate course related documentation, and a beliefs inventory. The analysis focusses on informants' personal epistemological beliefs about knowledge and knowing, language teaching and learning, and professional learning, whether beliefs changed over time, whether any changes are reflected in informants' classroom teaching, and what might explain any such changes.

In the first part of the chapter vertical analyses of data for each individual informant individually is undertaken in the form of a detailed narrative. The analyses incorporate a vignette of an informant's background and personal epistemology, a separate analysis for each phase of the study for each informant under three themes: language learning and teaching, response to learners, and professional learning. Schommer's framework is used to analyze changes in personal epistemological beliefs by distinguishing naive or complex beliefs.

The chapter then turns to a horizontal analysis and the conclusions for each informant are compared across each phase to detect commonalities, patterns, and

distinctions in the data. Results are then summarized under Pathways and a model, which explicates how informants' professed, implicit and enacted beliefs were shaped over the in-service professional learning course using the complex versus naïve distinction.

Assessing Individual Core Beliefs – Vertical Analysis of Findings

Details about informants' lives, background and education are gleaned mainly from the first interview in Phase one of the research. The details provide the backdrop to their implicit epistemological beliefs when arriving in the new teaching context and participating on an initial, in-service certificate course. Schommer's five factors and twelve subsets were the analytical devices used to classify their beliefs as either naïve or complex.

The premise which underlies Schommer's approach is that complex epistemological beliefs are more successful determiners of learning in the long term as they reflect a constructivist approach to knowledge creation. The in-service teacher training course emphasized a constructivist approach, and it was hypothesized that the beliefs of participants in the research would change over time to reflect this emphasis. In other words, their personal epistemologies, either implicit, professed, or enacted would assimilate or accommodate over time to the desired teaching and learning approach as a result of the certificate program (Table 3). The expectation was that their beliefs would become more complex to reflect this. Throughout the text beliefs are referenced to Schommer's framework through abbreviations which can be consulted in Table 6. My understandings of subsets are outlined in Appendix B.

Informants' Epistemological Belief Profiles and Changes over Three Phases

The progression of informant beliefs was followed over three phases and analyzed for each informant separately under each of the three themes, viz. language learning and teaching, responses to students, and professional learning. The vertical analysis for each informant, Alice, Beste, Deniz and Elif, is given separately in what follows.

Introducing Alice - Background and Core Beliefs

At the outset, Alice displays naïve beliefs in relation to Certain Knowledge (CK). Alice voiced fixed ideas about what truth is, made absolute statements about learning, and seemed unwilling to change her opinions, even when confronted with contrary evidence. She tended to overgeneralize by relying mainly on her own limited experience to form her knowledge base, and appeared to perceive knowledge as certain, without considering different perspectives (CK-nKC). Her naïve beliefs about Certain Knowledge (CK) became apparent from her discourse, but there was evidence from her examples that she also saw learning as reflecting Innate Ability (IA), although her beliefs about this factor are more nuanced. At one point in school she was grouped with low achieving students. She was introverted in early childhood, lacking in confidence and motivation, and she was afraid of making mistakes, which she saw as a lack of intelligence, hence the naïve belief that an ability to learn is innate (IA-nALI).

During secondary school education, encouraged by a teacher and her desire not to learn with a class of low achieving students, she began to study hard and develop strategies which showed her she could learn how to learn (IA-cCLHL) and that success was related to hard work (IA-CHW), both complex beliefs. Her success in accessing the high achieving class in school through hard work and effective

strategies increased her self-confidence, self-reliance, and motivation. Nonetheless, she only applied these beliefs to subjects she liked, such as language learning. For less-liked subjects such as math she reverted to a Simple Knowledge (SK) naïve approach, using note-taking and rote learning as a means of achieving success in exams (SK-nSSA). For the latter case she believed learning is quick (QL-nLQ), and depth was unnecessary (SK-nSSA). These learning strategies, subsets under the Quick Learning factor (QL), led to success. Thus, her complex beliefs were tempered by the subjects focused on, suggesting that her beliefs about learning may be naïve or complex according to her target.

A belief factor which stood out in Alice's background was related to Schommer's concept of Omniscient Authority (OA). Alice was loath to criticize authority (OA-nDCA) and maintained a non-confrontational stance with minimum interaction with authority figures, notably her school administrators. She believed in staying out of trouble and not disrupting lessons. She evidenced a dependence on authority (OA-nDA) in her relationship with her Spanish teacher, who, familiar with Alice's difficult home background, appears to have played a big support and guiding role in her life. She confided in this authority figure's knowledge and experience, followed her advice, and was guided towards university studies. She felt it important to like and be liked by her teachers, a naïve belief in the context of Schommer's framework, but with a positive side as she benefitted from the Spanish teacher's knowledge and experience. Alice expressed a reliance on knowledge gained from experience and the importance of exposure to different contexts to support learning (OA-cDA).

In her experience of learning a new language, namely Turkish, she needed confidence before taking part in discussions, reinforcing the belief that for her

language learning is not quick (QL-cLQ), as well as the belief that she could learn how to learn language (AI-cCLHL), both complex beliefs. Alice's beliefs were revealed as complex in the area of language learning in general. She believed in integrating new knowledge with practice, and that language was learnt in context (SK-cAI); she saw memorization as ineffective and looked for natural use of language (SK-cSSA). In her interview she even criticized her Spanish teacher for reliance on memorization for vocabulary learning.

The beliefs inventory, administered just prior to the first interview, corroborates to a degree the interpretation of Alice's implicit beliefs from the interview data. Summarized in Table 12 below, the data show the means of responses about knowledge and knowing, language learning and teaching, and professional learning for individual subsets under the five factors. Results support interview findings in Alice's beliefs about the Certainty of Knowledge (CK) reflecting a more naïve perspective, with the exception of Professional Learning. The Innate Ability subset (ALI) corroborates her complex belief that learning strategies can be developed. Her unwillingness to criticize authority (DCA), is seen under knowledge and knowing (KK), although not language learning and teaching (LLT). The latter is perhaps attributable to her appearing willing to criticize authority given her experience in this area. The data also tend to corroborate Alice's dependence on authority (DA).

In relation to quick learning (QL), the data for the subsets LQ and LFT appear to reflect her complex views on language learning, viz. integrating practice and contextual learning. Concentrated effort (WT), however, reflects a naïve perspective: here she is perhaps referring to non-language subjects for which she used rote learning. The factor Simple Knowledge (SK) is less easily interpreted in relation to

her interview, which may again reflect her beliefs changing according to the subject studied.

Table 12

Phase 1 Beliefs Inventory Responses for Alice

Factors	Subsets	KK	LLT	PL
SK	Means	2.84	2.63	1.57
Simple Knowledge	Seek Single Answer (SSA)	2.00	3.25	1.80
Simple Knowledge	Avoid Integration (AI)	3.67	2.00	1.33
CK	Means	2.59	3.00	2.84
Certain Knowledge	Avoid Ambiguity (AA)	2.50	3.50	4.00
Certain Knowledge	Knowledge is Certain (KC)	2.67	2.50	1.67
OA	Means	3.17	1.90	2.60
Omniscient Authority	Do Not Criticize Authority (DCA)	4.33	1.00	2.00
Omniscient Authority	Depend on Authority (DA)	2.00	2.80	3.20
IA	Means	1.78	2.62	1.94
Innate Ability	Cannot Learn How to learn (CLHL)	2.00	3.00	2.33
Innate Ability	Success Unrelated to Hard Work (HW)	2.00	3.25	1.00
Innate Ability	Ability to Learn Innate (ALI)	1.33	1.60	2.50
QL	Means	2.50	2.00	1.61
Quick Learning	Learning is Quick (LQ)	2.00	1.50	1.00
Quick Learning	Learn First Time (LFT)	1.50	1.50	2.33
Quick Learning	Concentrated Effort Waste/Time (WT)	4.00	3.00	1.50
	Overall Means	2.57	2.43	2.11

Note. Means: Complex = 1 to 2.3; Average = 2.31 to 2.60; Naïve = 2.61 to 5.00

Overall means suggest a more naïve beliefs profile on knowledge and knowing, and language and learning when compared to Professional Learning. The course had not started at this point, but over half of subsets fall into the complex category.

Language Learning and Teaching – Alice

Phase 1 - Language Learning and Teaching - Alice

In Alice's classroom teaching we saw the reflection of her core implicit beliefs. Alice's implicit belief that knowledge is at a surface level (SK-nSSA) and easy to access, was illustrated in her teaching of grammar and skills, and her simplification of detail (meaning and use of language), where she relied on memorization and form driven practice (SK- nSSA/AI). She exposed students to target structures in her presentation of language, but when difficulties arose, she reverted to rule memorization and more traditional deductive methods.

Alice exhibited an implicit naïve belief that knowledge is simple (CK-nKC), i.e., not requiring detail, for example, in the manner she adapted and simplified materials. She did not explore materials in-depth but treated the knowledge at a surface level, providing little challenge and simplifying lesson content, thus avoiding cognitive involvement (SK-nSSA). Nonetheless, as seen from her journal, she recognized the need for contextualized practice because of her experience in Spain where she learnt Spanish in acquisition mode (SK-cAI). Although she appeared to hold complex beliefs about language learning and teaching, her classroom practice showed naïve enactment, despite a complex belief that learning needs contextualization. She was unsuccessful putting this belief into practice as she had no insight into how to help students gain understanding. Thus, she professed a belief which she as yet could not put into practice, and which she was unable to reflect on at this stage in her journal, even though contextualized language presentation was emphasized on the in-service course.

Alice did not seem to believe that students had the ability to discover. In her journal she described herself as passing down information to students, seeing this as

normal (OA-nDA). Motivation was important for her. Students were capable of learning, but they needed motivation and willingness to learn (IA-cALI), a complex belief. But this complex belief did not seem realizable with her Phase One group of students, thus she returned to using a traditional teaching method. Students' lack of motivation prevented her enacting her belief fed by a naïve belief that Innate Ability to Learn (ALI) is activated through motivation.

Alice tended to overgeneralize in believing that something which did not go well in one class would, by analogy, not go well in another class (CK-nKC), indicating at this point that she had difficulties dealing with ambiguity. Students needed to have a positive opinion of her and when she tried something new, she needed reassurance from them (OA-nDA). Although she relied on experience and trial and error in her own language learning (OA-cDA), she resisted implementing this at the beginning of the in-service course in her teaching.

Towards the end of Phase One her journal evidences her reflecting positively on and accepting ideas presented on the course, such as presenting language in context and using guided discovery in grammar. This suggests she had both professed and enacted her acceptance of these beliefs, but they are not as yet accommodated. She was overcoming her prejudice as students responded positively, and developing more complex beliefs, through OA-cDA, but still not accommodated.

She started showing more learner-centered activities. At the outset of Phase One she did not adapt the coursebook - it was set in stone (OA-nDA). Towards the end of Phase One, three months later, in her journal she discussed adapting materials, plus student evaluation of them. She professed these beliefs in her journal, enacted them, but she had still not accommodated them into her implicit belief system. At this point Alice started to perceive institutional requirements as an authority as

workplace expectations related to exams started to appear (OA-nDA). Student desires determined her enacted beliefs as they pressured her for exam style practice, which made her change her lessons plans according to their wishes.

Phase Two - Language Learning and Teaching – Alice

By Phase Two Alice had readjusted her beliefs about lesson shapes (CK-cKC) and had begun adapting materials according to her learners' needs (OA-DA), rather than following her own preferences. She showed a willingness to ask her tutor for advice and guidance in lesson planning, an indication of a complex belief about integration of knowledge (SK-cAI). When she experienced effective lessons, she continued to adopt new ways of doing in her lesson planning (CK-cKC/SK-cAI) while continuing to consult tutors for help (OA-nDA). During this process of expanding her repertoire, Alice expected support from her learners in the form of participation and a positive response to lessons (OA-nDA). She accepted the importance of incorporating more practice activities into lesson plans (SK-cAI), in response to discussions on the course and with her tutors (OA-nDA), and she enacted them in her lessons, a complex stance.

Alice exhibited complex beliefs about Innate Ability (IA) in her interview, stating she did not perceive “learners as empty vessels” (IA-cCLHL), incorporating strategy training into lesson planning (IA-cCLHL). Alice's post-lesson reflections suggested she believed learning is innate. She did not give time to recycling previously learnt knowledge or sufficient time for students to complete activities, assuming learning to be quick (IA-nALI/QL-nLFT). In her classroom, strategy training remained at surface level, a naïve perspective. Although she exhibited a complex professed belief, she was unable to reflect on it. Her journal entries indicated she perceived skills and intellect as inborn. For example, lesson planning

incorporated activities to give students more structured language practice, a complex stance under Simple Knowledge (SK-cAI). Yet, her lesson delivery lacked a focus on clarification of meaning and use (SK-nAI). Her rationale given in the post-observation meeting was that learners should be able to notice it for themselves.

Alice continued to resist change to her core beliefs regarding vocabulary learning (CK-nKC). In order not to confront tutors with this resistance (OA-nDCA), she avoided enacting her teaching vocabulary beliefs when the tutor was present in class. Alice's strong dependence on authority, in this case the learners (OA-nDA), hindered her enactment of her professed beliefs from learning on the course, namely learner centered activities and necessary cognitive engagement of learners. Evidence from her journal entries and lesson planning showed she accepted promoting discovery learning as discussed on the course, a complex belief (CK-cKC/OA-cDA)), but felt reluctant to enact this in the class because of her learners' attitude, a naïve response to student demands for exam practice (OA-nDA). Students wanted institutional exam task types in lessons. The more Alice became familiar with her teaching context, the more she started to see institutional expectations as a source of authority (OA-nDA). As Phase Two progressed the type of activities she chose were more reflective of teaching towards exams, tasks reflecting exam items (OA-nDA). Nonetheless, Alice suggested to her learners that they get exposure to the target language through TV programs and other such activities, a complex belief (OA-cDA), thus still favoring learning through natural exposure. This evidences implicit complex beliefs about the importance of integration (SK-cAI).

When reflecting on effective learning and learner engagement, Alice considered it sufficient if students listened passively, a naïve belief (SK-nSSA). Even so, she started incorporating pair work activities into her lessons, an enactment of a

professed complex belief (SK-cAI). Her teaching practice and journal entries suggested the lack of a clear understanding of the underlying reasons for concepts and classroom activities discussed on the course, projecting implicit naïve beliefs (SK-nSSA). Also evidenced was her need to simplify information in textbooks believing (naively) that they entail too much academic detail (SK-nSSA). She still exhibited little tolerance for mistakes, which she perceived as a sign of failure (IA-nALI). As she was unsuccessful in using technology in a lesson earlier in her career, she resisted using it in her classes, again reflecting an implicit naïve belief (IA-nHW).

Phase Three - Language Learning and Teaching – Alice

Both the interview and lesson delivery during the semester following completion of the course revealed Alice had gained in confidence as a teacher. Her interview showed acceptance that one type of lesson planning does not fit all learners (CK-cKC). She amended lesson plans based on needs, a professed complex belief (SK-SSA). She no longer adhered to the coursebook as a source of authority but now adapted materials more critically based on her aims and the learner profile, a professed complex belief now enacted (OA-cDA/cDCA). Her planning and lesson delivery witnessed her willingness to use techniques she had been exposed to on the course (OA-nDA/CK-cKC). She implemented group work, elicitation, and discovery learning (OA-cDA); she demonstrated a deeper understanding of why she enacted certain beliefs in class such as engaging learners and contextualization (SK-cSSA). She was now seen to integrate complex beliefs about knowledge; it is no longer in isolation. (SK-cAI).

Despite movement towards enacting professed complex beliefs (IA-cALI), her students' lack of motivation and reluctance to participate impacted negatively on

Alice's willingness to implement those beliefs. Learner beliefs became an obstacle for her (OA-nDA). She reverted to rule-based teaching, selecting exam practice materials to satisfy learner expectations. In her reflections, however, she expressed dissatisfaction and frustration because she believed such approaches did not contribute to learning. She expressed a strong belief in the importance of applying knowledge in context, evidencing a complex implicit belief about integrating knowledge (SK-cAI).

Response to Learners - Alice

Phase One – Response to Learners - Alice

Alice displayed set beliefs about learners who were uninterested and unwilling to learn (CK-nKC). Her description of the learner profile in pre-observation tutor meetings evidenced a perception that unmotivated learners cannot learn (IA-nALI). In lessons, she nominated the stronger students in class (IA-nALI), and gave more emphasis to accuracy rather than fluency of language (CK-nKC), projecting naïve beliefs.

Alice gave precedence to learners who were intrinsically motivated to learn. The interview and journal entries revealed that for Alice learners needed drive and enthusiasm, a prerequisite for learning to take place (IA-cALI). Her planning and delivery revealed complex beliefs about the ability to learn being innate (AI-cALI) as she monitored weaker students' learning and provided individual support when needed. Furthermore, after the pre-observation meeting, she incorporated strategy training into her lesson plan (IA-cCLHL). However, the plan remained at surface level; she was unable to exploit strategy training to make it effective for the learners (SK-nSSA), despite Alice's best intentions to help the low achievers.

Phase Two – Response to Learners - Alice

Alice continued to emphasize intrinsic motivation and expressed contentment with students who showed interest in their own learning by asking for further guidance and clarification (OA-cDA / IA-cALI), but commented negatively on unmotivated learners (CK-nKC). However, interacting with seasoned colleagues (SK-cAI) helped her better understand the rationale for student behavior (IA-cALI).

At the outset of Phase Two Alice's classroom practice suggested she expected students to learn through natural exposure (OA-cDA). She provided minimum guidance for task completion, indicating talented students would be capable of understanding the task (IA-nALI) and that the acquisition of knowledge was simple (SK-nSSA). Towards the end of Phase Two Alice had started guiding students by outlining on the board how they needed to complete tasks and she evidenced a complex belief (OA-cDA) that it was possible to teach students to improve their language skills (IA-cCLHL). Alice's diary corroborates this change in perception regarding a more complex approach to accessing knowledge (SK-cSSA).

Phase Three – Response to Learners - Alice

At the beginning of Phase Three Alice felt more positive and understanding about unmotivated students and varied her strategies to help them learn (IA-cALI). However, her end of Phase Three interview revealed that, as students' worsening behavior showed a lack of interest in their own learning, she reverted to her initial belief, namely those with drive who worked hard would succeed (IA-nALI). Learners' attitudes impacted her own motivation to prepare lessons (OA-nDA) and encourage students (IA-nALI). In her interview she stated she preferred to give her time to those students motivated to learn.

Professional Learning - Alice

Phase One – Professional Learning - Alice

In Alice's interview she expressed the belief that no one style of teaching exists to suit all learners, therefore teaching should vary. Even tutors may hold different beliefs formed from their different backgrounds and experiences, suggesting Alice held complex beliefs about certainty of knowledge (CK-cKC).

Alice had her own naïve beliefs about how teaching and learning should be (CK-nKC). At the outset it was difficult to convince her to alter her lesson planning. She ignored suggestions when not in line with her own understanding of how a lesson should be structured. Yet, she did not want to confront authority (OA-nDCA). She believed in compromise only if suggestions given by the tutors had a clear rationale (CK-nKC).

In the second half of Phase One Alice's beliefs about certainty of knowledge weakened and she accepted different perceptions related to teaching, moving towards more complex beliefs (CK-cKC). She started confiding in the experience and advice of senior colleagues (OA-nDA/cDA) and implemented it without questioning (CK-cKC). For example, she attempted to shift control to the students in her teaching, although not always successfully.

Phase Two – Professional Learning - Alice

In Phase Two Alice started relying on the in-service course more (OA-nDA) and became more receptive to new teaching ideas (CK-cKC) after witnessing positive responses from her new group of learners (OA-nDA). Her skepticism about new information from the course and tutors lessened and she became more willing to try ideas (CK-cKC). She indicated in her interview and journal the positive impact of the course, namely it helped her understand how to link theory to practice (OA-

nDA). This openness to new ideas was witnessed in particular where new beliefs did not previously exist in her core beliefs such as providing guidance to students (IA-cALI) or varying the structure of lessons according to circumstances (CK-cKC). She stated that interacting with peers, tutors, and colleagues, as well observing seasoned teachers as part of course requirements, helped her better understand how to implement these new beliefs in the classroom (OA-nDA, SK-cAI).

Her interview and journal revealed she no longer perceived knowledge as simple (SK-cSSA). Her reflection on what happened in lessons, with reasons, projected a deeper level of awareness. Her comments and practice showed she had developed more complex beliefs about the ability to learn (IA-cALI). She was more tolerant of her own and her learners' errors. Instead of avoidance strategies when faced with failure, she consulted experienced colleagues to better her approach and tried again (SK-cAI). Alice's comments also suggest a change in her perception about speed of learning, namely learning is a gradual process (QL-cLQ/LFT).

Phase Three – Professional Learning – Alice

Dependence on authority, viz. context, learner beliefs, and the course, was the overarching theme of Phase Three (OA-nDA). The expectations of these sources of authority were not necessarily in line with her personal beliefs. Nonetheless, she met expectations so as not to confront authority (OA-nDCA). In her interview she emphasized how authority of context plays an important role (OA-nDA). Although she now believed no one way of teaching was appropriate for all contexts (CK-cKC), she adapted her teaching style according to the expectations of the workplace. Thus, institutional expectations and learner beliefs about teaching and learning forced her to plan her lessons in a certain way, not necessarily in line with her personal beliefs about teaching and learning developed through the in-service course.

Alice's dependence on the training course as a further source of authority had a considerable impact on her professional development (OA-nDA). She stated the content and requirements of the course gave her the drive and confidence to try new ideas, and she learnt a lot from this type of experience (OA-nDA). Observing, being observed, and receiving feedback from colleagues helped her develop a deeper level of awareness, which enabled her to reflect more critically on her teaching and develop autonomy (SK-cSSA).

Introducing Beste - Background and Core Beliefs

Beste displayed complex beliefs about knowledge and truth on arrival. Early experience with a lecturer had changed her perception of what truth is: "everything you hear is an opinion not a fact, and everything you know is ideas not the truth". Questioning existing theories was a natural part of an expert's domain, so she tried to look at situations from different perspectives (CK-cKC). Complex beliefs were again reflected in her adaptability, her ability to apply analytical methods to subjects in school, notably languages and math, and to watching student reactions to her teaching during her university teaching practice. On the other hand, she did not change her opinions easily, relying rather on previous experience and suggestions closer to her beliefs, and her own perspectives, before committing herself to a view on her teaching. If elements of a textbook did not fit in with her beliefs, she would take them out, evidence of avoidance of ambiguity (CK-nKC).

Beste also displayed complex beliefs related to Innate Ability (IA) as she saw learning as a gradual process and students as maturing in their ability to become responsible for their own learning (IA-cALI). A progression in expectations builds confidence (complex) but she did not always see her own progress that way. She saw herself as lazy compared to her hardworking successful peers at school, but in so

doing recognized that her peers learnt how to learn through following up on lectures, and that their academic success was related to their working harder, (IA-cHW). She herself used self-study books to learn and recognized the importance of fun as a boost to learning (IA-cCLHL/cHW). She was surprised when she and not her peers was chosen for her current job, a blip in her belief in hard work bringing success. She was a last-minute person when it came to homework and study deadlines. She appeared to believe that concentrated effort was a waste of time (QL-nWT), and learning could be quick (QL-nLQ).

Due to frequent school changes, Beste was able to adapt easily to new contexts, and forged her own career decisions backed by her parents, unlike her friends' parents (OA-cDA). However, she was tolerant of traditional teaching in geography (SK-nSSA), eventually adopting that style, criticizing more experimental and discovery-based teaching in science (OA-nDA). She interpreted the latter as a possible lack of knowledge on the part of a teacher if answers to questions did not come immediately (SK-nSSA), therefore she felt able to criticize authority (OA-cDCA). So, she appeared to believe in learner autonomy and fun in learning (OA-cDA) and disliked reliance on memorization in social sciences in school (SK-cSSA), she reflected dependence to a degree in her traditional style of teaching (OA-nDA).

Being liked by the teacher held an important role in her experience (OA-nDA). When faced with contradictory feedback, she would accept it from the higher-ranking individual (OA-nDA). However, she displayed complex beliefs (OA-cDA) that people “can learn more by experiencing”, which tied into her teaching practicum experience in an EU country which helped her improve her teaching. She believed real learning was based in personal experience rather than theory from textbooks (SK-cSSA), underlined by her forgetting about learnt theories once in front of a class

(SK-cSSA), and her inability to put into practice theories learnt in university courses (SK-cSSA).

Beste's beliefs inventory presents a mixed picture (Table 13). She professes complex beliefs in the area of Certain Knowledge (CK), but, in practice, her treatment of book materials and her reliance on core beliefs in developing opinions suggest a naïve perspective, borne out in the data which tended more to a naïve

Table 13

Phase One Beliefs Inventory Responses for Beste

Factors	Subsets	KK	LLT	PL
SK	Means	2.67	2.96	1.17
Simple Knowledge	Seek Single Answer (SSA)	2.00	1.25	1.00
Simple Knowledge	Avoid Integration (AI)	3.33	4.67	1.33
CK	Means	2.67	2.71	3.25
Certain Knowledge	Avoid Ambiguity (AA)	3.00	3.17	4.50
Certain Knowledge	Knowledge is Certain (KC)	2.33	2.25	2.00
OA	Means	3.09	2.40	2.55
Omniscient Authority	Do Not Criticize Authority (DCA)	2.67	3.00	1.50
Omniscient Authority	Depend on Authority (DA)	3.50	1.80	3.60
IA	Means	3.03	2.73	2.72
Innate Ability	Cannot Learn How to learn (CLHL)	2.00	2.50	2.67
Innate Ability	Success Unrelated to Hard Work (HW)	2.75	3.50	3.00
Innate Ability	Ability to Learn Innate (ALI)	4.33	2.20	2.50
QL	Means	1.67	1.92	1.67
Quick Learning	Learning is Quick (LQ)	1.00	1.00	1.50
Quick Learning	Learn First Time (LFT)	1.00	2.25	1.00
Quick Learning	Concentrated Effort Waste/Time (WT)	3.00	2.50	2.50
	Overall Means	2.62	2.54	2.27

Note. Means: Complex = 1 to 2.3; Average = 2.31 to 2.60; Naïve = 2.61 to 5.00

interpretation. A similar picture is shown under Innate Ability (IA). She was able to learn how to learn, and saw students as responsible for their own learning, reflected in the scores under knowledge and knowing and language learning and teaching, respectively. However, she believed her job application success was unrelated to hard work, perhaps explaining her scores under this subset (IA-HW). Her views under quick learning (QL) are reflected in the score under the concentrated effort subset (QL-WT), as she was a last-minute person in submitting work, but the other subset results seem to contradict her interview testimony. The Omniscient Authority (OA) scores reflect to some extent her ability to criticize authority (DA), but, on the other hand, her unwillingness to criticize authority (DCA) is apparent. Under simple knowledge she displays complex beliefs, reflecting her views in the interview, and yet she shows naïve views under the SK-AI subset, perhaps showing her unwillingness to seek further knowledge before exams or study deadlines.

Language Teaching and Learning - Beste

Phase One – Language Teaching and Learning - Beste

Phase One started with teacher-centered lesson planning as her proposed solutions to potential problems revealed her as the provider of knowledge, rather than guide to learners. In lessons she provided students with final answers when students were sharing responses, and she perceived it as her responsibility to explain the meaning and use of target structures. She attempted to guide students to discover meaning, influenced by discussions on the training course (OA-nDA), but then immediately switched to a teacher centered style (OA-nDA). Beste initiated some strategy training in response to discussions on the in-service course and a pre-conference, prior to which student responses in lessons had shown little evidence of such strategy training (IA-nCLHL).

Beste's teaching approach was very much under the influence of her learners' response to her lessons (OA-nDA). Her students in Phase One responded positively to exam-practice lessons. When she tried communicative activities, a positive step towards complex enactment (OA-cDA), she was met with resistance, which she found demotivating. She felt pressured to teach exam-type materials in order to engage her students (OA-nDA), which dissatisfied her, affecting her health: "my hands were shaking, and my breathing was irregular". She wished to move to a more complex teaching style (OA-cDA) but was frustrated by her students' wants. The authority she felt in this case came from her students (OA-nDA).

Beste acknowledged the importance of developing students' productive language skills (SK-cAI) in particular speaking, but she still focused on language rules as formulas rather than getting students to analyze structures in context (SK-nAI). Her explanations of language use tended to lack depth of understanding (SK-nSSA) and her clarification remained at a surface level, more concerned with the form than meaning (SK-nSSA). She adhered closely to the school's weekly curriculum plan and exam task types while planning her lessons. In her reflection on lessons, her concerns centered more on having delivered the planned stages, rather than whether student had been taught effectively (OA-nDA/SK-nSSA).

Phase Two – Language Teaching and Learning - Beste

Phase Two started more positively. Beste displayed satisfaction at the motivated engagement of her new group of students, and their willingness to take notes (IA-cALI). She began to implement communicative activities (IA-cALI), made an effort to check understanding of target language (QL-cLQ/SK-cSSA), and selected materials to reflect student needs. She provided a clear rationale for guiding students towards analyzing language in context, set more complicated tasks, and, in

line with discussions on the in-service course (SK-cSSA), started catering for her students' learning needs which were not exam-related (AI-cCLHL). These developments showed her enacting a more complex belief system, with faith in the learners' ability to learn how to learn. However, her demeanor regarding the school's timetable expressed helplessness, blaming its rigidity for not being able to incorporate revision practices (IA-nALI).

Beste remained highly dependent on institutional materials (OA-nDA). However, they were less exam-oriented than previously, a source of motivation for her, and she felt happy when students responded well and participated (OA-nDA). She still saw it as her role to supply answers if students failed to understand, and to provide and check the accuracy of language, a recurring interview theme (OA-nDA). The in-service course influenced her practice, displaying more complex beliefs: replacing the direct giving of rules with discovery learning; contextualizing language practice for productive use; using a less didactic approach, making use of students' knowledge (OA-cDA/SK-cAI)); bridging the knowledge gap with students (QL-cLQ); allocating sufficient time for task completion by students (QLc-LQ/SK-cSSA); incorporating games for revision of vocabulary which were meaning focused (SK-cAI) and context embedded (SK-cAI); identifying functional language in planning and delivery (SK-cAI), asking students to categorize functions (SK-cAI); replacing controlled practice with more communicative activities (SK-cAI); developing her own rationale as to the need to develop students' productive skills (SK-cSSA); connecting needs of students to the rationale for tasks while planning (SK-cAI); altering her approach to revision from a less rigorous approach (SK-cSSA); analyzing language in depth during planning (SK-cAI); developing a deeper understanding of concepts related to teaching (SK-cSSA).

Phase Three – Language Teaching and Learning - Beste

Beste had realized that her previous language learning habits based on memorization and translation did not contribute to learning (SK-cSSA); now recognizing the importance of context, she saw the need to apply information to a context (SK-cAI). She also recognized the difference between the deductive practices of her high school teachers, and an “inductive way” using context and personal experiences. She acknowledged the importance of experience and reflection in careful planning and selection of resources in order to provide clarity, and avoid confusion, while delivering lessons (OA-cDA).

Despite recognizing the importance of student-centered learning she gave in to student pressure for exam-based practice (OA-nDA), acknowledging, however, that it did not contribute to their learning (OA-cDA). These dilemmas continued – she saw the effectiveness of student-centered learning (OA-cDA) but admitted to sometimes adopting the role of an information provider (OA-nDA). Maintaining face in front of students and the need to be liked by them provided the motivation to prepare lesson plans thoroughly (OA-nDA). At the same time she had recognized the need to vary learning materials, resources, and teaching style (CK-cKC) to reflect student needs, lesson aims, and circumstances. At the outset of the course she had followed Pathways, now reflection was an integral part of her professional experience (SK-cSSA). She emphasized the need for real learning, not simply memorization. From her experiences on the in-service course, she acknowledged that knowledge was tentative and changed according to circumstances and should be balanced (SK-cAI). She admitted to having changed her perceptions on what teaching and learning was. Beste felt uncomfortable about the tension between

beliefs and classroom practice when responding to student pressure for exam practice but weighed it against gaining their attention and contributing to her own motivation.

Response to Students – Beste

Phase One – Response to Students - Beste

Beste did not look for ways to help the students go beyond their existing knowledge and skills (IA-nALI). She shifted the focus from meaning to form, so students did not have to think much about the appropriate use of target language (IA-nALI/SK-nSSA). She believed this group of learners did not need to participate in the lessons if they did not feel like it (IA-nALI) since they are repeating the same proficiency level. She nominated stronger students more, neglecting weaker ones, whether repeating or studying the level for the first time (IA-nALI). Towards the end of Phase One Beste had started taking feedback on board and showed her intention in lesson plans to nominate quieter students (IA-cALI), a more complex stance. In practice, however, she continued interacting with stronger students (IA-nALI).

She believed students repeating the level know the subjects and did not need further encouragement to participate (IA-nHW/QL-nWT). She expected a traditional style of discipline in the classroom and did not like students shouting out their answers believing learners should wait to be nominated (OA-nDA). The challenge level was generally low in Beste's classes (SK-nSSA). Even in her assessed TP at the end of Phase One, she simplified the task for students by shifting the focus of a freer practice activity from meaning to form (SK-nSSA). She believed that introducing students to terminology was an important contributor to learning (SK-nSSA). Her Phase One response to students appeared overwhelmingly naïve.

Phase Two – Response to Students - Beste

Beste showed willingness to implement teaching ideas she had acquired on the course (CK-cKC). She expected students at university level to be in charge of their own learning and be motivated to learn, seen in her lesson planning (AI-nALI). Her experience was otherwise, and a cause for her own demotivation (OA-nDA). She expected students to revise outside lessons and come up with what they already knew, without her guidance (IA-nALI). She applied her own expectations from her time at university where she worked very hard to pass her exams (IA-cHW). She felt bitter when students stopped studying after one assessment until just before the next (OA-nDA). Lesson contents “don’t attract their attention, (are) not appealing for them, their mobile phones are more appealing”. She realized that she needed to be more assertive and push students, despite them giving her a difficult time. A positive classroom environment was not enough for learning to take place. When she insisted students complete tasks, the classroom setting changed (OA-cDA/SK-cSSA).

Beste stated during the interview that she perceived her role as facilitator, guide in the classroom, and guide to sources where students could get information (OA-cDA). However, at other times she saw herself as a provider of knowledge who immediately corrects student mistakes (OA-nDA). When students applied newly learnt structures productively, she saw it as her achievement (OA-nDA). She showed a willingness to implement teaching ideas acquired on the course (OA-nDA). She had realized that participation in class is not enough and studying extensively was important because if students did not study regularly, they became distracted and unmotivated (IA-cHW/QL-cLQ).

Phase Three – Response to Students - Beste

Beste admitted that she resorted to exam practice classes in the end. She found it demotivating to have switched to exam practice because of pressure coming from students (OA-nDA). She now believed in the importance of strategy training, i.e. showing how, for learning to take place, before moving on to exam practice. By developing the right strategies, learners could improve their skills (IA-cCLHL). She emphasized the importance of students being intrinsically motivated to participate in the lessons. She concluded that, if she had been stricter in class, students would have paid more attention (OA-cDA). She used to have a closer relationship with her learners, which had now changed. She realized she should not be too friendly as students abused her friendship; therefore, she needed to possess and display authority (OA-cDA).

Professional Learning – Beste

Phase One – Professional Learning – Beste

When not confident using tutor suggestions, she followed her originally worked out plan (CK-nKC). However, she took tutor pre-conference feedback on board and finalized plans accordingly (OA-nDA). For example, she initiated a learner-centered approach and with the intention to nominate quieter students, attempting a more complex enactment (OA-cDA). At certain points in her reflection she recited her tutor's words from the pre-conference when commenting on the usefulness of an activity (OA-nDA/SK-nSSA). She showed no resistance to implementing tutor teaching suggestions in lesson planning (OA-nDCA). Beste approached course content at surface level. Reflections on her lesson delivery lacked depth of understanding: they were descriptive, emphasizing more the extent of student engagement in activities (SK-nSSA). She appeared not to be able to reflect

on a lesson's effectiveness and learning (SK-nSSA) in line with training course expectations.

Phase Two – Professional Learning – Beste

Beste expected clear rationale from an authority as to why it was better to deliver a lesson in a particular way (CK-cKC/OA-cDCA). When commenting on an aspect of teaching, she approached it from different perspectives, and she avoided making absolute statements (CK-cKC). She had become more receptive to the course content, witnessed in her preparation of pre-conference lesson plans. She realized the importance of catering for different learning styles and needs and that some misbehavior was due to a teacher's chosen methodology and style (CK-cKC/IA-cALI/SK-cSSA).

As Beste did not feel confident with some aspects of course content requiring flexibility, e.g., flexible planning incorporating recycling, she resisted it (CK-nKC). She blamed the school's weekly program for a lack of flexibility, also the view of colleagues (CK-cKC) and did not believe in the expectations of those in authority (OA-cDCA). She shifted to her initial beliefs when pressure from the in-service course was removed (CK-nKC). For example, she took feedback on board for planning her observed TPs but reverted to teaching language functions out of context (SK-nAI), showing a propensity to resist implementing suggestions not in line with her beliefs (CK-nKC).

She realized the importance of not giving answers directly but creating ways for students to discover meaning, a complex belief (IA-cALI/OA-cDA)); however, she thought students capable of dealing with all aspects of a language point on the same day, a naive belief (IA-nALI). She tried to diagnose student needs and bring in appropriate strategy training activities (IA-cCLHL). Making mistakes and reflecting

on them contributed to her learning, experience, and confidence (IA-cALI). She also accessed new knowledge “learning from books, from training courses” (OA-nDA). “You can change it [knowledge, skill] but if you don’t feel comfortable at first, then you may try other ways – learning by trial and error”. She derived more from experience than from reading, believing that experimenting teaches a lot (OA-cDA). However, course content impacted on her reflection skills, helping her better identify her strengths and weaknesses in classroom practice (SK-cSSA). She believed the course helped her gain knowledge and experience and speeded up the process (SK-cAI), rather than simply relying on experimentation and finding teaching ideas on her own (OA-nDA).

She was more receptive and willing to implement the content of the discussions on the course, viz. shifting away from a teacher-centered approach, using context to guide discovery rather than a didactic approach (OA-cDA). Although she was familiar with theory about different learning styles and multiple intelligences from her undergraduate courses, it was only at this point she realized its importance and implications for classroom practice. Course discussions and assignment were an eye opener for her and made her question her teaching style (SK-cSSA). Seeing the change in students’ attitude and their active participation in the lesson made her “feel motivated and energetic” (OA-nDA). In her lesson planning and delivery, she instructed students to identify the functional language in context and categorize the functions (OA-cDA).

She would easily perform in the way the authority expected without believing in what she was doing if it were to receive a grade (CK-nKC). Beste easily adapted herself to the expectations of people in authority, saying “that’s what we learnt and

that's what makes sense to me". She was still heavily dependent on tutors and did not want to confront their opinion (OA-nDCA).

Phase Three – Professional Learning – Beste

Beste's awareness of the context she was teaching in enabled her to better understand the needs of her learners. Feedback on her teaching practice helped her develop a deeper level of understanding of classroom related issues (SK-cSSA). When she received feedback on her teaching Beste started relating feedback to her classroom experiences both as a learner and teacher, and to her theoretical knowledge (SK-cAI). She better understood the rationale behind feedback. The course enabled her to question the knowledge she was surrounded by because she believed people learn by questioning (SK-cSSA). She questioned the content of some seminars she attended at a conference around that time because they did not link theory to practice. She had realized that planning lessons according to the needs of the students required planning time, and that putting effort into lesson planning led to achievements in her teaching practice (SK-cSSA).

Introducing Deniz - Background and Core Beliefs

Deniz was newly graduated, with a BA in English Language Teaching. Born in Turkey, the eldest child of the family, she grew up in different countries in the Middle East and North Africa as her father worked for Turkish Embassies. Her mother worked as a housewife, accompanying her husband during his duties abroad. Both Deniz and her younger sister, a medical student, went to a number of International Schools which followed the IB curriculum, and were bilingual. At the outset of Phase One Deniz projected complex beliefs in relation to the structure of knowledge (SK), certainty of knowledge (CK), control (IA) and pace of learning (QL). Deniz's reflection on her education at international schools

recognized that knowledge requires critical thinking and depth of understanding and was not generalizable to all circumstances (SK-cSSA). In her school years she was required to apply newly introduced knowledge by the teacher (OA-nDA) to different circumstances (SK-cAI) and learn from this experience (OA-cDA), a reoccurring interview theme.

Synthesizing knowledge from different sources and integration of knowledge was a prerequisite (SK-cAI) as part of her end of year assessment. She strongly believed that concepts and truth change depending on circumstances, and knowledge was not something static but evolved and changed over time (CK-cKC). During her own school system experiences, students were given different options in terms of the courses to take (OA-cDA), depending on how they wanted to pursue their academic studies (CK-cKC). Thus, her school years were formative in developing her core complex beliefs about the certainty of knowledge (CK-cKC).

A further reoccurring theme in Deniz's first interview was dependence on authority, viz. on her teachers, as part of learning to become autonomous (OA-nDA). She emphasized teachers giving introductory information, directing students to necessary resources, and showing the need to approach learning before setting tasks requiring students to study independently, promoting learner autonomy. Deniz strongly believed that a teacher's teaching approach hugely affects students' learning and academic success, and thus teachers were personally responsible for this learning and success (OA-nDA). Dependence on the teacher was more in the form of getting students interested in topics; making learning meaningful by relating it to real-life situations; and, modelling how students needed to approach topics and study independently outside class, i.e., providing learning strategies (IA-cCLHL). Teachers assigned research tasks, class presentations, and encouraged learning from each

other's work, promoting learner-centered lessons (OA-cDA). Another outstanding school-related theme was being exposed to real-life situations and being given meaningful practice (SK-cAI), where they needed to solve a problem rather than learning from books (OA-cDA).

Based on her own experiences as a learner, Deniz held complex beliefs about ability to learn. Learning was possible if authority provided the right strategies and guidance (IA-cCLHL). Yet, she believed individuals' intrinsic motivation and interest were also important factors for learning (IA-cALI). As a learner she saw that academic success can only be achieved through hard work and studying outside class using the right learning strategies (IA-cHW). For her, acquiring knowledge was not a fast process (QL-cLQ). She observed that the best teachers she had, had under-gone strict training over the years to be well-qualified in their fields (QL-cLQ/IA-cHW). Similarly, learning to study independently and building a knowledge base in areas such as genres in literature was not an easy process (SK-cSSA) and it took some time to be competent (QL-cLQ/WT). The tasks she was assigned in class made her realize challenge (SK-cSSA) and concentrated effort led to success (QL-cWT).

Despite exposure to more complex epistemic and learning related beliefs, Deniz's interview reflections revealed exposure to a traditional style of teaching in her French foreign language class (SK-nSSA). On several occasions during the first interview, she expressed dissatisfaction about the lack of challenge in those lessons (SK-cSSA). She criticized the teacher's emphasis on form to the detriment of meaning and use of the language. Deniz observed their class' slow language development compared to the immense progress of students in the other foreign language class where the teacher was strict, pushed the students' limit (IA-cHW), and gave more emphasis to meaning and use (SK-cAI). Seeing the other students

being more competent confirm for Deniz the importance of challenge in lessons (SK-cSSA) and working hard to succeed (IA-cHW).

The beliefs inventory data in Table 14 largely support the interpretation of Deniz's implicit beliefs from the interview data. The mean scores corroborate her complex beliefs under knowledge is certain (KC) related to language learning and teaching (LLT) and professional learning (PL). For innate ability (IA), the subset cannot learn how to learn (CLHL) and ability to learn is innate (ALI), appear to reflect her complex views in all three areas (KK, LLT, PL). The data in relation to learning is quick (LQ) reflect her complex beliefs on knowledge and knowing (KK)

On the other hand, the data do not corroborate other beliefs from interview data. Concentrated effort is a waste of time (WT) reflects a naïve perspective despite her pronouncements. The avoid integration (AI) subset for language learning and teaching did not confirm her complex belief about the need to integrate knowledge. The exposure to learning in her French language classes might have played a part here. In her interview she displayed an unwillingness to criticize authority if the authority carried out its responsibilities in guiding students (OA-nDCA). The survey data for knowledge and knowing (KK) and professional learning (PL) bear this out. However, language learning and teaching (LLT) data show her willingness to criticize authority, perhaps reflecting a strong core beliefs as her experience as a French language learner. The success in unrelated to hard work (HW) subset portrays average beliefs on language learning and teaching (LLT) and professional learning (PL), in contrast to beliefs expressed in her interview.

Overall means tend towards a more complex beliefs profile in all three areas: knowledge and knowing (KK), language learning and teaching (LLT), and professional learning (PL), even though the course had not started at this point.

Table 14*Phase One Beliefs Inventory Responses for Deniz*

Factors	Subsets	KK	LLT	PL
SK	Means	2.10	2.79	1.17
Simple Knowledge	Seek Single Answer (SSA)	2.20	2.25	1.00
Simple Knowledge	Avoid Integration (AI)	2.00	3.33	1.33
CK	Means	2.50	2.21	1.42
Certain Knowledge	Avoid Ambiguity (AA)	2.50	3.17	1.50
Certain Knowledge	Knowledge is Certain (KC)	2.50	1.25	1.33
OA	Means	2.84	2.20	2.95
Omniscient Authority	Do Not Criticize Authority (DCA)	2.67	2.00	2.50
Omniscient Authority	Depend on Authority (DA)	3.00	2.40	3.40
IA	Means	1.89	1.93	2.28
Innate Ability	Cannot Learn How to learn (CLHL)	2.00	1.50	2.33
Innate Ability	Success Unrelated to Hard Work (HW)	2.00	2.50	2.50
Innate Ability	Ability to Learn Innate (ALI)	1.67	1.80	2.00
QL	Means	2.50	2.42	1.61
Quick Learning	Learning is Quick (LQ)	2.00	2.50	1.00
Quick Learning	Learn First Time (LFT)	1.50	1.75	1.33
Quick Learning	Concentrated Effort Waste/Time (WT)	4.00	3.00	2.50
	Overall Means	2.37	2.31	1.88

Note. Means: Complex = 1 to 2.3; Average = 2.31 to 2.60; Naïve = 2.61 to 5.00

and professional learning (PL), but are average in relation to language learning and teaching (LLT), perhaps due to her experiences as a French language learner at school. The data tend to corroborate Deniz's dependence on authority (DA) in so far as she needed the help of authority to achieve independence.

Language Teaching and Learning - Deniz

Phase One - Language Learning and Teaching – Deniz

Deniz emphasized the importance of getting at depth of meaning when talking about her educational background, and the complexity of knowledge.

However, this was not evidenced in her lesson planning and teaching (SK-nSSA). Knowledge presented to the learners in her grammar and vocabulary lessons were at a surface level, lacking focus on meaning and rather form driven (SK-nSSA). Perception of knowledge as simple showed in Deniz's lesson plans for pre-conference meetings. Planned on her own, they entailed too many aspects of the target language for a short period of time, supporting a view that Deniz perceived knowledge as simple, reflecting a lack of depth of understanding on her part (SK-nSSA/QL-nLQ). A lack of promoting cognitive engagement in the learning process through simplifying target language again evidences simplification of knowledge during language learning (SK-nSSA). While Deniz lacked depth of understanding of certain techniques in her lesson delivery at the outset, this changed in the second half of Phase One. A move towards a more complex stance in her perception of knowledge helped Deniz to reflect on the lack of effectiveness of her lesson delivery and the underlying reasons (SK-cSSA).

Deniz's core belief about the importance of integration of knowledge (SK-cAI) was evidenced in her classroom practice in Phase One in several ways. She presented target grammar points in meaningful contexts, guiding questions to help students discover form and meaning (OA-cDA). Deniz preferred a top-down approach to grammar teaching, believing students should not get lost in detail as it would lead to confusion. She looked at the bigger picture, viz. how grammar is used in context (SK-cAI). Deniz encouraged students to practice grammar in meaningful, life-like contexts, integrating language systems with skills work and applying newly learnt grammar rules to practice. A further complex belief about the integration of knowledge was seen in Deniz's determination to recycle, building on students' existing knowledge before introducing new learning (SK-cAI/QL-cLQ).

Despite her constructivist approach to teaching grammar, Deniz projected a more traditional approach with regards to vocabulary. Despite pre-conference feedback, she presented vocabulary in isolation without context, expecting students to match the target vocabulary and definition (SK-nAI). In her reflection she was able to identify the problem, evidencing her ability to learn from experience (OA-cDA/SK-cSSA).

Deniz revealed a strong dependence on authority (OA-nDA), the source of which took different forms. She took it as her responsibility (OA-nDA) to clarify and justify tasks to students and provide them with correct answers on the spot. She intended equipping students with information needed for their journey to learner autonomy (OA-cDA). She perceived students as a source of authority, too (OA-nDA). Evident from her journal was her developing awareness of the importance of knowing student interest areas, including exam scores. This impacted her choice of materials, task types, and lesson design and made teaching easier for her. She questioned the appropriacy of the teaching materials provided by the institution for her group of learners (OA-cDCA) and amended the materials appropriately (OA-cDA). Her rationale for choosing activities showed that her aim was to prepare students for real-life rather than exams (OA-cDA).

However, towards the middle of Phase One, exam task types started to influence her teaching (OA-nDA). She tried to compromise by having exam task types and those catering for actual student needs, evident in her journal entries. In the end, however, she began deviating from lesson plans to create more room for exam-focused learning. Her journal entries document her efforts to use communicative, learner-centered activities, and the resistance from students she had to deal with.

Deniz's lesson planning and rationale showed the importance she attached to motivation for learning (IA-cALI). Her learners' motivation levels affected her own motivation to teach, a frequently occurring theme: "when students are eager to learn and when they are cooperative, and when they psychologically leave me alone in class, my motivation towards teaching decreases" (RJ p.1) (OA-nDA). Furthermore, she signaled that her learners' attitude towards learning differed from when she was a student, making "it difficult to have a similar outlook on the way we learn" (RJ p.2). She believed incorporating strategy training in her lesson (IA-cCLHL) would lead to learner autonomy and help learners improve their weak areas (IA-cALI). Rather than providing further controlled practice activities when problems arose, she believed it is more useful "to give the students some input on how to solve the problems" (RJ p.4) (IA-cALI). Improving students' meta-cognitive strategies, she said, would increase the effectiveness of their learning (IA-cCLHL). While Deniz was able to implement strategy training in skills-focused lessons (IA-cCLHL), it was less observable in her grammar-focused lessons.

Despite Deniz's belief in scaffolding learners to promote learner autonomy, her enactment showed inconsistencies (IA-nALI). In TPs she did not always clarify sufficiently what students needed to complete a task, expecting learners to immediately grasp what to do. Likewise, she often took more interest in the learning outcome than the process, a more traditional approach to teaching. Yet, in her post-conference reflections, she was able to identify this and the need to model tasks so that students could accomplish them (IA-cALI).

Phase Two - Language Learning and Teaching – Deniz

Deniz's ability to develop deeper level of understanding in students depended on whether a lesson was language or skills focused. Deniz persisted in not going into

meaning while focusing on language systems (SK-nSSA), not so for skills practice. Her lesson preparation and delivery projected a depth of understanding of what was entailed in skills work (SK-cSSA) and she increased the challenge level of lessons through a judicious integration of skills work (SK-cAI), and tasks which required critical thinking skills (SK-cSSA). She also realized, when given responsibility in class, students took learning more seriously. In her journal she stated she had underestimated the capacity of students (SK-cSSA).

A frequently occurring theme in TP and interview data was the linking of learning to real-life situations (SK-cAI). She was aware of skills students needed in their academic studies and planned accordingly by providing learners with more freer-practice opportunities (SK-cAI) using controversial topics to provoke discussion. Her complex belief about integration of knowledge and building on existing knowledge persisted. Her non-supervised lesson plans revealed her intention to revise previously learned language items or skills, before moving on (SK-cAI). Enactment in lessons showed her belief that learning happens over time (QL-cLQ), requiring multi-exposure to comprehend and practice a structure and skill (QL-cLFT).

Her perception that it was her responsibility to deal with all learner problems and provide solutions continued to exist, although not as strongly as in Phase One, seen in lesson planning and delivery, and interview data, and journal (OA-nDA). Her dependence on authority continued to exist in different forms (OA-nDA). She gave importance to how her students responded to her choice of activities and lesson delivery. From interview data this had become a major concern for her after a group of learners complained to the line manager expressing doubt about Deniz being able to prepare them for exams. Exams task types and exams themselves started to

become a more powerful influence. As of the beginning of Phase Two, she came to the conclusion that her workplace was insisting on her implementing a particular teaching methodology and became critical of the context and teaching methodology promoted (OA-cDCA). In interviews and journal she mentioned on several occasions these factors prevented her from implementing more communicative activities (OA-cDCA/cDA). Nonetheless, continuing from Phase One she contextualized language and used guided discovery for target structures, using concept check questions more effectively; she designed tasks where students listened to their own and their peers' oral performance and evaluated their effectiveness (OA-cDA). Her rationale being that learning takes place through practice (OA-cDA). She set up tasks directing students to take responsibility for their own learning, such as using target structures in their speaking and writing, studying outside class, and coming to lessons prepared (OA-cDA/IA-cHW).

Deniz exhibited complex beliefs regarding the stability of knowledge. On several occasions she stated that knowledge was an evolving phenomenon, not static (CK-cKC). This was observable in her classroom where she showed flexibility, deviating from her plan depending on the learner performance and response to activities (CK-cKC). Similarly, she expressed interest and willingness to vary her teaching techniques, even when she felt existing activities in her repertoire effectively helped her achieve required learner outcomes (CK-cKC). Although she strongly believed that some techniques were effective in contributing to learning based on her own experiences as a learner, she did not enact them, preferring to adhere to the requirements and expectations of the workplace (OA-nDA).

Deniz had claimed it possible for learners to learn and take responsibility (IA-cALI), but she was not able to evidence enactment during Phase One. However, from

the beginning of Phase Two onwards, it was possible to observe these beliefs enacted in her classroom. She provided better guidance for lower achieving students by giving clear, explicit instructions, setting up and modelling communicative activities, making outcome expectations clear to the students, monitoring learner performance and providing individual support when necessary – all complex beliefs (IA-cALI). Deniz started incorporating strategy training more frequently in her lessons to help students make learning more efficient (IA-cCLHL).

Phase Three - Language Learning and Teaching – Deniz

Deniz had a group of unmotivated and disinterested students, but showed resilience in countering their resistance to learning, evidencing her belief in the potential to learn (IA-cALI). She adjusted her lessons to their needs (CK-cKC), looking at the broader picture when and how the students need to enact these language skills (SK-cSSA). Her lesson plans and reflection showed she took account of the mood of her learners (SK-cSSA) and consulted colleagues for advice (SK-cAI). Furthermore, she planned a series of lessons to prepare the students gradually for a lesson (SK-cAI, QL-cLQ), assigned students homework to study enabling vocabulary prior to coming to class (SK-cAI, IA-cALI), bringing everything together in the observed lesson.

Deniz tried to motivate and help learners to learn despite resistance during class time (IA-cALI). She incorporated educational Apps to engage the learners, persisted in guiding students using concept-checking questions, gave students thinking and preparation time before asking them to participate in whole-class activities, encouraged peer-checking prior to whole class feedback, asked questions to check learning, and created opportunities for learning from one another. As in

Phase Two, Deniz showed her learners strategies to help them with their learning (IA-cCLHL).

Response to Students - Deniz

Phase One – Response to Students – Deniz

A frequently recurring theme was Deniz's belief in the possibility for learners to improve themselves with the right type of scaffolding. A series of lessons which she prepared to gradually support the learners develop particular skills and knowledge about language evidence this (IA-cCLHL). Deniz saw it as her responsibility to support, guide, and scaffold students to improve. Her lesson preparation rationale supported her belief that students depend on the teacher to become autonomous learners. Post-conference reflection emphasized that the teacher decides how much practice to give to the learners (OA-nDA). She expected students to develop metacognitive strategies, be autonomous learners and study outside class time (IA-cCLHL). Her journal entry stated that when students were given the opportunity to comment on their learning, they were more motivated and took an active role in their learning (IA-cCLHL).

However, when it came to enactment, Deniz's attitude was contradictory. She targeted higher achieving students when clarifying the meaning and use of structures, did not provide sufficient clarification and guidance with meaning and use, nor how to approach the language practice activities. Instead, she expected students to grasp the target structure immediately and apply it (IA-nALI).

Although Deniz emphasized the importance of learner autonomy, her classroom practice revealed a rather controlling attitude towards the students. Instead of cognitively engaging learners in discovery of language, she provided the functions

of language in lecture mode (OA-nDA). She also had the tendency to simplify the knowledge and challenge of materials below learners' proficiency level (SK-nSSA).

Phase Two – Response to Students – Deniz

Deniz's response to her learners' revealed a continuation of her beliefs regarding the control of learning (IA). On several occasions during the interview Deniz persisted in expressing her view that it is possible even for low achieving students to improve and become successful when the right guidance is given (IA-cALI). However, she strongly believed the prerequisite for this is students needing to be motivated to learn (IA-cALI), and expects students to study outside class time as well. Like in Phase One, she perceives it as her responsibility (OA-nDA) to show students how they need to study (IA-cCLHL). For Deniz, when students are motivated, it would also help them develop as critical thinkers (IA-cALI) but with the group of learners she had around the time of the interview, she felt it was not possible because they lacked motivation saying "they are not motivated at all ... they are not motivated to learn anything, they kind of see the learning environment that we have over here as an obligation" and adds "they are coming here to pass the exam ... they are not coming here to be able to, ... become proficient speakers ... that's why I think it's very difficult to make them become or help them become critical thinkers". Towards the end of Phase Two she had started questioning her own position on students' goal-oriented, exam-focused learning, and whether extrinsic motivation was not a valid spur to learning.

Deniz showed elements of giving students a choice in terms of what, how and in what order they would like to study by making them reflect on their individual needs (OA-cDA). During the interview Deniz took an understanding stance towards learners' traditional educational background (SK-cSSA) and persisted stating it is her

responsibility to help learners develop as autonomous learners (OA-nDA). Deniz's response to learners revealed learners' attitude towards learning affected her style of lesson delivery, suggesting Deniz had started to perceive the learners as a source of authority (OA-nDA). This became also evident in interview when she stated she had stopped designing activities requiring learner autonomy and critical thinking because of their attitude in the lessons (OA-nDA). She stressed students lack of interest affected her level of motivation and enthusiasm to teach (OA-nDA). As she stated in her journal: "even though I think that their opinion was wrong. I could not get them to be motivated and I could not push them to cooperate and learn, no matter how hard I tried."

Phase Three – Response to Students – Deniz

Deniz's encounter with unmotivated learners continued in Phase Three. This had affected her perceptions of what motivated learners to take part in the lesson (CK-cKC). She used to think that students in her context are exam oriented and would participate in lessons when given such type of materials. However, through experience in class she reached the conclusion that exam practice materials are not always sufficient to motivate them. She stated: "my beliefs on students being, you know, exam-oriented, and my belief about exam-oriented students would always try to do their best to learn from exam focused materials has changed completely, that's not the case".

Despite the atmosphere in her class, Deniz did not give up on her belief that students can learn provided they are motivated, displaying a complex stance (IA-cALI). During her teaching, she remained calm and had an understanding attitude towards students' irrational answers and unmotivated attitude. It becomes evident from the interview that learners' impacted her choice of techniques in class (OA-

nDA). Their lack of motivation impacted Deniz's motivation to implement communicative activities and be experimental in her teaching. She indicated that she felt frustrated and burnt out on many occasions during the interview because of the learners' attitude. One major reason was her expectations from students to be motivated. Deniz stated although she confronted them many times, she could not see any change in their attitude towards learning.

Unlike in previous phases, it could be observed that Deniz had stopped trying to engage the unmotivated students in the lesson (IA-nALI). Instead, she gave her attention to the low achieving but motivated learners. She stated it is possible for those learners to learn when guiding and varying her style according to their needs and modelling how they needed to approach tasks (IA-cCLHL).

Despite the challenges Deniz was facing in her lessons, she was trying to link the situation to the fact that learners need time to become autonomous learners, and for learning to take place (QL-cLFT). During the interview she stated that she considered it as a natural process of learning when students did not understand a subject the first time.

Professional Learning - Deniz

Phase One – Professional Learning – Deniz

The in-service course and course tutors were sources of authority which Deniz depended on to make headway in the teaching profession (OA-nDA). From comments during pre-conference meetings, she tried to incorporate content and discussions from the in-service course into her lesson planning (OA-nDA) without necessarily understanding the rationale behind the activities (SK-nSSA). She was receptive to suggestions by tutors and incorporated those amendments without question (OA-nDCA) into her lesson planning (OA-nDA). However, despite tutor

feedback, she could not resist implementing her core beliefs while delivering her lessons (CK-nKC).

Receptiveness to content and discussions on the in-service course positively (OA-nDA) impacted her reflections on her teaching practice. She was able to approach issues from different perspectives while commenting on the effectiveness of lesson delivery and gave rational explanations for learner behavior (SK-cSSA). In her reflective journal entries, rather than blaming students for misbehavior, she tried to reflect deeply to understand underlying causes (SK-cSSA).

Phase Two – Professional Learning – Deniz

Dependence on authority to develop professionally and become independent continued to exist in Deniz's beliefs about the source of knowledge (OA-nDA). While the form of authority was the formal course in Phase One, Deniz had started perceiving seasoned colleagues as a form of source of authority (OA-nDA), a frequently occurring theme, from whom she believed she could obtain information about teaching and dealing with learners (SK-cIA). She further added, while making use of the experience of seasoned colleagues, she did not rely on one person only but consulted several colleagues, reflected on their suggestions, and selected parts she felt was applicable to her group of learners (CK-cKC). She was using the experiences of her colleagues to find her own way while developing professionally (OA-cDA) rather than perceiving the suggestions as the absolute truth.

Her dependence on authority to develop professionally is in line with her willingness to ask her tutors for advice to further improve her lesson plan and delivery (CK-cKC) during the observation cycles. Deniz could implement the feedback into her classroom practice easily (CK-cKC). She stated during the

interview that she had been benefitting a lot from the experience of her tutors during pre-, and post-conferences (SK-cAI/OA-nDA).

Deniz expressed professional development is possible (IA-cALI) but requires motivation (IA-cALI), hard work (IA-CHW) and reflection on classroom practice (SK-cSSA), especially when problems occurred while teaching. In addition to the support she received from her seasoned colleagues and course tutors (O-nDA), Deniz frequently pronounced that she had been learning from her own classroom practice, rather than books, which she considered a secondary source of knowledge. By trying different teaching techniques in her classes (OA-cDA) and making mistakes, which she perceived as a natural part of her professional learning (IA-cALI), she felt she was learning (OA-cDA). Her reflections during the interview supported the complex belief that learning takes place over a period of time (QL-cLQ) and requires effort (QL-cWT). Being self-reliant came also to the fore when she expressed that she conducted further background research (SK-cSSA) when she could not understand the content of some of the sessions on the formal course (OA-cDA).

Phase Three – Professional Learning – Deniz

The interview revealed that by the end of Phase Three, the whole experience on the formal course and classroom was an assurance for Deniz that there is no one correct way of teaching (CK-cKC). Varying choice of teaching techniques according to the profile of her learners and willingness to implement and experiment different teaching ideas to gain experience was frequently pronounced. Experimenting with different techniques in class gave Deniz the courage and motivation to be more experimental in her teaching (CK-cKC/OA-cDA). Questioning and reflecting on her classroom practice (SK-cSSA) was a further drive for Deniz to amend her teaching (CK-cKC). Instead of losing motivation and giving up when faced with failure in

class, she stated that she continuously tried changing her teaching approach (IA-cALI).

Deniz persisted in consulting more than one seasoned colleague for teaching related advice, which further evidenced that she did not perceive knowledge as fixed (KC-cCK), further supported by her argument during the interview that knowledge in the field of education is evolving rapidly, rather than being static. Therefore, it is not possible for individuals to have the whole picture. A frequently occurring theme was that Deniz was making use of seasoned colleagues' experiences by conversing, listening, and observing them in their classes (SK-cAI). For her, experience was more precious than theoretical knowledge (OA-cDA/SK-cAI). She indicated that she had been benefitting from their experiences, yet she tried to be selective about whom to consult depending on the nature of her teaching related enquiry.

Although Deniz's comments about her learners and her teaching practice revealed the impact of the course on her level of awareness (OA-nDA), she over-emphasized knowledge as a result of practice and experience in the classroom (OA-cDA), reflecting and amending her teaching practice accordingly. For Deniz learning was the result of experiencing things in life, either at personal or professional level, and that she had been learning from what she has been experiencing while teaching by reflecting on her classroom practice (SK-cSSA). She stated that people change their beliefs on a subject as a result of experiencing (OA-cDA), reflecting on the experience, and making improvements (SK-cSSA). As in Phase Two, Deniz indicated that this whole process leading to learning requires time (LQ-cLFT).

Introducing Elif - Background and Core Beliefs

Elif came from a small town in the north and went on to study English Language Teaching in a state university in Ankara. During her middle school years,

she resisted pressure from her teachers to go to a science high school. She said she hated mathematics and science, and enjoyed social sciences and literature, and decided for an Anatolian Teachers High School. So, it appears she chose the teaching profession early on in her teenage years. In her high school she observed and evaluated teachers' effectiveness and, for example, was critical of some teachers for not coming prepared to class (SK-cSSA).

Elif was self-reliant and hardworking during her education, her parents never told her to study (IA-cAKI). She was social in her school years and took part in writing competitions or art. Every month she was producing something and getting awards (SK-nSSA/QL-nLQ). She said she generally came in first or second place, rarely third, and was used to having her picture in the local newspaper or school bulletin. She was 'kind of' talented in drawing and writing, thanks to her parents' genes, she said, and was a popular student in school amongst teachers (IA-nALI). Because of her extracurricular activities she did not study regularly for her lessons tending to be a last-minute person in both high school and university (SK-nSSA/QL-nLQ).

As a learner she was aware of her learning in lessons, as she did not want to spend extra time studying in the library. She was a visual learner, took notes, made diagrams, looked at them very briefly before taking an exam (IA-nHW). She did not push her limits to gain high marks – a pass was enough for her. Knowledge was fast and simple, and she seemed to be reliant on memory (SK-nSSA/QL-nLQ). She did not put time and effort into book learning, but a lot into drama activities. She was liked by teachers and criticized by classmates for being teacher's pet. Teachers liked her creative drama productions.

She did not study much on her own for daily lessons. For Math and Science she arranged gatherings with friends good in this field to help out (SK-nAI). She asked friends rather than teachers as the latter would not have had time, she thought. She spent more time working on subjects she liked, and less time on less enjoyable subjects – thus liking subjects was important. If she could remember the subject and topic at the end of a lesson, then this meant for her that learning had taken place (SKnSSA).

Her middle school English language teacher had a big influence on her own decision to become a language teacher; she had initially considered archaeology. The teacher was inspirational - she did not have a traditional approach to teaching but instead she used songs, texts for pronunciation, and other realia. Her recognition of good teaching was implicit at the time as Elif did not realize the teacher was doing this until later. She realized listening to songs made vocabulary more memorable (SK-cAI), and enjoyable activities contributed to her learning. Inspirational teachers were eager to teach something, and such eagerness made learning attractive (OA-nDA). They were constantly moving in class and engaging all students using different examples.

Prior to her current job she had had 5 years teaching experience with young learners in private schools. Her previous classroom experience made her feel comfortable in the present work context (OA-cDA). Elif realized learning is not quick and was something normal in the light of her professional learning development over the years (QL-nLQ). Her university education was more theoretical, and she needed time to transfer theory to practice. She recognized herself as a life-long learner and that she would be a student for the rest of her life (9QL-cLFT); qualifications do not finish learning. She saw knowledge was not certain but

developing and evolving (CK-cKC). She considered herself a holistic learner, wanting to see the big picture.

Elif criticized worksheet dependent teachers (she remembers falling asleep in those lessons). Seeing teachers rely on providing worksheets for learning made her realize this type of teaching was ineffective (CK-cKC/OA-cDA). She failed traditional teachers' English literature classes but got A's in classes which used communicative activities (SK-cSSA). The inspirational teachers asked students to use creative thinking to exploit materials and she was more willing to do these teachers' assignments. Exposure to inspirational teachers was also a reason for her joining drama training in university. Being respected was important for Elif, and through her experience she realized she had got over the 'like me' syndrome as a teacher. She considered focusing on students' needs was important (CK-cKC).

From a professional Learning perspective, she believed that knowledge was gained from experience, and that learning from mistakes, trial and error was important (OA-cDA). Bad experiences were valuable as such experiences started her searching for new ways of doing. Even if things went well, after a while she got bored and began looking for new ideas (CK-cKC), harking back to her belief in lifelong learning. Elif preferred books to online learning, but did not read them all, she was very selective (SK-nSSA/QL-nLQ). She preferred to read on her own before asking tutors and colleagues how they would teach (SK-nAI). She said she needed a basis before building on knowledge. She told students the same thing, namely that books are better for proper information. They should not rely on friends as the knowledge may not be known properly or may mislead. Books provided specific information but were not the holy grail. After reading something, if it was not clear,

she preferred to consult tutors. When implementing knowledge, she felt the need to consult teachers (OA-nDA).

Table 15

Phase One Beliefs Inventory Responses for Elif

Factors	Subsets	KK	LLT	PL
SK	Means	3.50	3.50	2.20
Simple Knowledge	Seek Single Answer (SSA)	3.00	3.00	2.40
Simple Knowledge	Avoid Integration (AI)	4.00	4.00	2.00
CK	Means	2.67	2.67	1.50
Certain Knowledge	Avoid Ambiguity (AA)	2.33	2.33	3.00
Certain Knowledge	Knowledge is Certain (KC)	3.00	3.00	2.00
OA	Means	3.20	3.20	3.65
Omniscient Authority	Do Not Criticize Authority (DCA)	3.00	3.00	3.50
Omniscient Authority	Depend on Authority (DA)	3.40	3.40	3.80
IA	Means	2.77	2.77	2.33
Innate Ability	Cannot Learn How to learn (CLHL)	2.00	2.00	2.00
Innate Ability	Success Unrelated to Hard Work (HW)	3.50	3.50	2.00
Innate Ability	Ability to Learn Innate (ALI)	2.80	2.80	3.00
QL	Means	2.67	2.67	2.33
Quick Learning	Learning is Quick (LQ)	2.00	2.00	2.00
Quick Learning	Learn First Time (LFT)	3.00	3.00	2.00
Quick Learning	Concentrated Effort Waste/Time (WT)	3.00	3.00	3.00
	Overall Means	2.96	2.96	2.60

Note. Means: Complex = 1 to 2.3; Average = 2.31 to 2.60; Naïve = 2.61 to 5.00

She was motivated when learning things on her own (SK-nAI). She enjoyed preparing things and had confidence in her ability to create interesting material. If a task did not work, she reflected on the reasons (SK-cSSA). She stated she was a perfectionist, which was not necessarily a good thing, but she was working on it. She looked at tasks in hindsight: she may have overestimated students' ability and

realized she should not stretch them outside of their capacity: "don't kill your students" (SK-nSSA/IA-nALI).

The beliefs inventory data in Table 15 show Elif to hold mainly naïve beliefs when the factors are averaged, but there are within factor subset differences. In general, her responses related to professional learning are more complex and reflect her views and experience particularly as regards avoid integration (AI), knowledge is certain (KC), as do her answers under the factors IA and QL. These latter scores tie in with her facility and self-confidence in learning, and her work ethic. The Omniscient Authority scores suggest a high-level dependence on authority (OA), reflecting perhaps the value she attaches to inspirational teachers.

Language Teaching and Learning – Elif

Phase One - Language Teaching and Learning - Elif

Throughout Phase One Elif saw fun and joy as important for learning and used humor, creativity to enhance motivation to meet the needs of her class profile (SK-nSSA). She sought ways to engage unmotivated students (IA-cALI) as she believed students could learn when given proper guidance. She provided close monitoring and individual support, gave clear explanations and instructions while setting up activities, and required students to justify of answers (IA-cALI). However, Elif seemed not to believe students could learn from each other (SK-nAI/OA-nDA) nor did she seem to understand the rationale for peer checking (SK-nSSA). Therefore, she did not encourage peer checking, her rationale being that students had done a couple of peer checks in the previous hour, so they might have got bored if asked to do more (SK-nSSA). She lacked awareness when planning for and reflecting on classroom practice, not selecting enabling vocabulary carefully for

presentation, rather relying on a random selection without clear aims, and trying to link every classroom activity to improving pronunciation (SK-nSSA).

She did not structure her presentation stages in a well thought through and organized manner expecting students to understand grammar lessons directly (IA-nALI). Likewise in receptive skills practice her comprehension questions were not well designed or sequenced meaningfully (IA-nALI). In grammar lessons the text was not displayed to draw learners' attention to the use of target structures, nor to illustrate how conclusions were reached, believing students were capable of following easily (IA-nALI). In her receptive skills lesson, on the other hand, she implemented strategy training, explaining how to find answers to questions, encouraging learners to justify answers, providing clarification and underlining contextual clues (IA-cCLHL).

She perceived it as her responsibility to be the source of knowledge throughout Phase One. Her lesson planning revealed she saw it as her responsibility to provide clarification and solutions to problems and made little attempt to elicit from students, rather spoon-feeding them instead. However, her lesson plan indicated her professed view that peer checking time take place prior to whole class feedback, but she did not enact the belief (OA-nDA). She made attempts to incorporate discovery learning into her lesson delivery from mid-Phase1 onwards and ask students guiding questions to discover meaning and the use of grammatical structures but switched to a didactic approach almost immediately when learners showed confusion (OA-nDA).

She criticized the coursebook and was not dependent on it but instead prepared her own materials right from the start (OA-cDA), trying to link materials adaptation to the needs of her learners and create fun and motivation (SK-nSSA).

She mentioned in lesson plans this mismatch between coursebook content and level objectives (OA-cDCA). Nonetheless, institutional exam task types had an impact on her choice of materials and lesson delivery right from the beginning of Phase1 (OA-nDA)

She perceived learning as quick and simple, not setting realistic time limits for activities which were then generally rushed. She did not allocate sufficient thinking time for students and switched rapidly to lecture mode and went over text analysis quickly without getting to core meanings (QL-nLQ/SK-nSSA). She simplified knowledge by laying out the meaning and form explicitly on the board (SK-nSSA/OA-nDA). She seemed to underestimate students' capacity, only eliciting for less cognitively demanding tasks (SK-nSSA/IA-nALI).

She integrated language and skills work in her lesson planning and delivery from the beginning of Phase1, by linking structures to real life situations and incorporating discussion into lesson to enable students to use target structures (SK-cAI). She personalized her lessons to make learning more meaningful, though sequencing was deficient (SK-nSSA). Work on pronunciation was commonly integrated into grammar and skills lessons (SK-cAI). She prepared students gradually by planning a series of lessons and building on existing knowledge by, for example, comparing with other similar structures (SK-cAI). Despite the above, when presenting enabling vocabulary, she expected students to match words with definitions without context (SK-nAI).

Phase Two - Language Teaching and Learning - Elif

Elif believed it possible for students to learn and develop, even become native-like speakers if an element of fun was present in instruction and classes (SK-nSSA), and, when scaffolding was provided, students could work out the meaning

and use of language by themselves (IA-cALI). However, in practice Elif's instructions to students were not clear: key information was lacking, staging was not explicit, and the purpose and expectations from activities were not made apparent to students (IA-nALI/SK-nSSA). She felt pressured by student learning preferences and motivational considerations, which determined her choice of task types. For example, although not comfortable with using technology, she incorporated it into her lessons. She also failed to confront those who came and went at will during lessons (OA-nDA).

From the beginning of Phase Two she gradually shifted responsibility onto learners. She created self/peer-correction opportunities, designed activities in which students evaluate their own and peers' spoken performance, elicited functional language rather than providing it, attempted to use guiding questions to uncover the meaning and use of structures, guided students to work out the difference in meaning between words with similar meanings (OA-cDA). However, towards the end of Phase Two a shift back towards a more naïve enactment of the above was observed. She became teacher-centered, lecturing students (OA-nDA) and increasing her use of humor, therefore talking time, dominating both the lesson and feedback (SK-nSSA). She appeared almost over-confident (OA-nDA).

Elif's lesson plan was not set in stone, and she deviated depending on learner needs (CK-cKC). She used context for language presentation (SKcAI) allowing students to deduce meaning (OA-cDA). She focused on learner mistakes that came up during the group discussion (SK-cAI). Elif built on students' existing knowledge, planning a series of lessons to prepare them gradually for speaking practice tasks (SK-cAI). Language was learnt and practiced in meaningful contexts, integrating enabling vocabulary in context, asking personalization questions to make the target

language memorable for the learners, and incorporating pronunciation work into her lesson (SK-cAI).

However, her understanding of concepts lacked depth (SK-nSSA). She saw knowledge as simple: her sequencing of concept check questions, despite feedback, was not well thought through, and did not clarify meaning; her rationale for the selection of a test-teach-test approach was at surface level; she seemed unable to reflect on and provide reasons for problems occurring during lesson delivery; she lacked anticipation of potential learner problems; she allocated insufficient time for activities, presumably perceiving them as easy (SK-nSSA). Elif perceived learning as quick and therefore simple, expecting students to immediately understand instructions or meanings of words, and how to use them (SK-nSSA/QL-nLQ).

Elif evidenced a lack of understanding of the purpose of activities, believing that funny stories and personalization were enough for learning (SK-nSSA). Her instructions for more complicated activities lacked clarity and guidance. She seemed unaware of the importance of providing sufficient contextual clues for deducing meaning. She was unable to give a clear rationale for her choice of lesson shape and perceived that knowing fillers in English spoken discourse contributed to native-like competence (SK-nSSA).

Phase Three - Language Teaching and Learning - Elif

Elif believed students can improve (IA-cALI). In her TPs she sought justification of answers so weaker students could learn how to do it and provided individual support while monitoring. She focused on strategies for deducing meaning from context, although not always showing students how to complete tasks (IA-cALI). She shifted control to the learners, asking students to justify their answers rather than explaining, promoting peer checking before whole class feedback,

encouraging students to evaluate their own responses against dictionary definitions. She used a test-teach-test approach to adapt the lesson to learner needs (OA-cDA). Although when attempting to elicit answers, she was quite domineering during feedback (OA-nDA). She had developed a deeper level of understanding of the purpose of activities and varied her questioning style. She realized she needed to get students to do tasks, just preaching was not enough (SK-cSSA). She integrated some critical thinking into her lesson by asking students what meaning the target structure added to the sentence. She asked students to evaluate the appropriateness of answers by checking against the dictionary (SK-cAI/OA-cDA).

She criticized the way her line manager implemented teaching material while observing this authority figure, and then used the same material in her class, with supplementation (OA-cDCA).

Response to Students – Elif

Phase One – Response to Students - Elif

She expected learners to be motivated to learn and take part in the activities, confronting the learners when necessary (IA-cALI). She perceived it as her responsibility to ensure motivation to learn (OA-nDA).

She exhibited dependence on a source of authority (OA-nDA): she had the tendency to lecture the students rather than engaging them cognitively by applying discovery approach in language focus lessons. She discouraged students from making use of their peers' knowledge and experience but consulted books instead, believing peers can be misleading (SK-nAI). She expected learners to apply the newly learnt language structures in context all the time (SK-cAI). She did not provide models, expecting learners to understand immediately how to write in a particular discourse (IA-nALI/SK-nSSA). She underestimated students' ability to

cope with the demands of learning a foreign language. She did not believe they needed to know the meaning and use of target structures in detail and presented at a surface level (SK-nSSA).

Phase Two – Response to Students - Elif

Elif was aware of the need to vary teaching style to reflect her learners' profile (CK-cKC). She was tolerant towards learner mistakes, perceiving them as part of the learning process (IA-nALI), responding to them with a sense of humor. Although she stated it was both the teacher's and student's responsibility (from beginning of Phase Two onwards), she thought it more her responsibility to ensure learning took place (OA-nDA). For example, if teachers assigned homework, students would give it more importance, thus she saw the teacher as provider of knowledge. She considered ways for involving the quieter and unmotivated students in lessons, and guided students to work out the meaning and use of the target structure (IA-cALI). Towards the end of Phase Two she showed a naïve enactment of the above (IA-nALI).

Elif expected students to be actively involved in the learning process. They had to analyze language structures and evaluate their own and peers use of the target language (OA-cDA). She incorporated pair work, peer checking as she believed students learn better from peers (SK-cAI). She saw learning as a process, requiring students to use language, make mistakes, and correct their mistakes, but the learning did not take place immediately (QL-cLFT). She expected students to use newly presented language structures in context, believing that this was how learning took place (SK-cAI/OA-cDA). She made them think about the underlying purpose of activities in class, although she herself was not very clear about it (SK-nSSA). Elif worried about classroom management, evidencing dependence on learners as, if

students liked her, then they were more motivated to learn (OA-nDA). She knew from experience students may say they liked her but could write harsh comments on the instructor evaluation forms.

Phase Three – Response to Students - Elif

She had become more aware that no single truth exists. She was more tolerant in her relationships with colleagues and students, was aware of different learning styles and varied her teaching style, accordingly, considering her class profile while adapting teaching methods (CK-cKC). She tried to be clear and logical while presenting or explaining a piece of information so that it could be understood, believing that people accept information when it sounds logical to them (CK-nKC). She was patient during the learning process, thinking everybody learns differently and at a different pace (QL-cLQ). Students should feel the need to ask questions, be motivated to learn (IA- cALI). Teachers should create an environment where students are interested in their learning and ask questions – those type of teachers are successful professionals.

She was aware that learning required a lot of hard work and this is what she expected from students (IA-CHW). She projected more depth of understanding of learner differences and needs, varying her explanations and clarification depending on students' response to her instruction. She saw student needs rather than her teaching preferences as important (SK-cSSA). She claimed that exams did not influence her choice of materials and delivery of instructions, considering students speaking English in class to be a success (SK-cAI/SK-nSSA). She preferred to simplify and provide knowledge for students so that they did not need to study or revise outside class time (SK-nSSA/QL-nLFT).

It was important that students liked her, believing it the way to reach students.

If they found the lesson boring, there was no point in continuing. She considered herself as the provider of knowledge, not just authoritarian but also authoritative (OA-nDA).

Professional Learning – Elif

Phase One - Professional Learning - Elif

In her interviews she expressed the belief that professional learning was lifelong (SK-cSSA/QL-cLQ), stating that knowledge evolved and developed (CK-cKC). Even when classroom activities went well, she sought better ways of teaching. She stated she was benefitting and implementing techniques discussed on the in-service course (OA-cDA). When she received contradictory feedback, could not find solutions to problems in her teaching, or understand what she had read (IA-cHW), she was not afraid to ask tutors for clarification (OA-nDA) to understand the underlying problem and how it could be improved (CK-cKC). The course was a source of authority (OA-nDA) and she adapted the suggested techniques to her teaching (CK-nKC). She was not afraid of taking risks and making mistakes in class because mistakes made her search for new ways of teaching (IA-cHW).

She valued experiential learning, considering trial and error in practice as important (OA-cDA). She implemented feedback, evaluated the effectiveness of suggestions before accommodating them into her repertoire. Books provided her with useful information, but they were not the holy grail. Even when her classroom practice went well, she looked for alternative ways of teaching, preferring to search for ideas before consulting experienced colleagues or tutors, feeling motivated when she could learn on her own. She did not expect tutors to dictate what she needed to do (OA-cDA). She was aware that professional learning took time and was based on her own experience and development over the years (QL-cLQ).

She left completion of course assignments to the last minute, yet she did plan subconsciously, she said, before writing (QL-nLQ). She believed in the importance of building on existing knowledge and linking theory to practice (SK-cAI). She expected tutors to link the theory to classroom situations so that what was discussed was easier to understand. She valued the tacit knowledge of colleagues and tutors and wanted to make use of it (OA-cDA). She sought clarification from colleagues before writing formal course assignments (SK-cAI). She preferred books to online information but did not read them all, only selectively (SK-nSSA).

Phase Two – Professional Learning - Elif

Elif seemed to believe in a single truth, accepting suggestions depending on whether they made sense to her (CK/nKC): “Changing what I do depends on how logical I find the piece of information”; “If tutor sees something in class, then if she is right, I am here to learn from my mistakes” (validates the feedback with her core beliefs?). When the tutor encouraged her to implement particular techniques which she did not believe in, and could not successfully implement in her teaching, she criticized these activities in her post-lesson reflection as being ineffective (CK-nKC/SK-nSSA).

She saw making changes to her teaching as a part of professional learning when the suggested teaching ideas were not contradicting her core beliefs. She tried out different teaching techniques and valued tutor and student feedback, amending accordingly. She did not want to repeat the same techniques over and over again as it would not have contributed to professional learning (CK-cKC). She considered it necessary to be experimental in class, as learning from mistakes was a natural part of the learning process (IA-cALI)

Elif believed in hard work, trying to make sense of the session content, studying on her own, and, if something did not make sense, consulting her tutor for help and clarification (IA-cHW). As she gained familiarity with the context, she preferred consulting seasoned colleagues for advice before approaching tutors, where previously she tried to read and learn on her own (SK-nAI). She valued sessions which provided practical teaching ideas directly implementable in class (OA-cDA). She preferred people telling her straight what she needed to do in class (SK-nSSA). Students' success was a further motivational factor for her (OA-nDA). However, her lesson planning was quick and lacked depth of understanding (SK-nSSA/QL-nLQ), preferring to consult colleagues to get on the spot solutions.

She believed professional learning took time, revisiting knowledge, finding solutions to problems (QL-cLQ). She valued the course because it helped her to apply theory, which she was familiar with, into practice (SK-cAI/OA-c-DA). She believed in the importance of applying theory to practice and reflecting on it rather than just recalling information (SK-cSSA). She did not like it when too much detail was given when she consulted experienced colleagues, preferring to avoid complicated information, keeping information simple (SK-nSSA/QL-nLQ). She started to do further studying, whereas in her school years she learnt everything in class.

Phase Three - Professional Learning - Elif

She accepted that she could not know everything related to vocabulary, but for grammar it was possible (CK-cKC). She accommodated feedback if it sounded logical, in line with her core beliefs, and when receiving contradictory ideas went for the one that made sense to her (CK-nKC). She used to think knowledge was

unchanging, but the course provoked her to recognize that things changed according to circumstances. (CK-n/cKC).

She needed to study language while preparing classes for higher proficiency levels, which improved her English (IA-CHW). Professional development took place as a result of reflecting on her classroom action, questioning why things did not work out in class (SK-cSSA/OA-cDA). She criticized authority such as her line manager, and coursebook, adapting the materials. She went against tutor feedback and amended lessons according to her perception of learners (CK-nKC)

She was aware that professional learning is a process and requires time, and that she could not tackle all problematic areas at the same time, so she prioritized (QL-cLQ). She understood knowledge required deeper levels of understanding through reflection (SK-cSSA). She accumulated knowledge as a result of observing, being observed and receiving feedback, putting theory into practice (OA-cDA) and reflecting on its effectiveness (SK-cSSA). Her questioning beliefs came from reflection on practice and valued experience of colleagues more than from knowledge presented in books. The learning atmosphere in the work context was important as she learnt from others' experience, as interacting and exchanging ideas had helped her improve her quality of reflection (SK-cAI). She was intrinsically motivated to develop professionally (IA-cALI).

Horizontal Analysis of Informant Personal Epistemological Beliefs

Nine Pathways, summarizing the findings of the analysis undertaken in the previous section, are presented in Table 16, and discussed individually below.

Grouping instances of classroom practice, each Pathway reveals a common pattern of change in implicit, professed, and enacted beliefs, either complex or naïve, for the four informants, Alice, Beste, Deniz, and Elif, over the case-study's three phases.

Table 16*Pathways 1-9: Patterns in Belief Changes*

No	Pathways	Informant Alice	Informant Beste	Informant Deniz	Informant Elif
1.	(In + En) ▶ (Pc + Ec) ▶ (In/c - NE)	CK/KC ^a SK/SSA SK-SSA	OA/DA SK/SSA SK/SSA	OA/DA	
2.	(In + En) ▶ (Pc + Ec) ▶ (Ic + Ec)	QL/LQ QL/WT	IA/ALI IA/CLHL		
3a.	(In + En) ▶ (Pc + Ec) ▶ (In + En)	IA/ALI			
3b.	(In + En) ▶ (NA + Ec) ▶ (In + En)				CK/KC
4.	▶ (Pc + Ec)	SK/SSA	SK/AI		
5a.	▶ (C + En)	OA/DA	OA/DA		
5b.	(Ic + En/c) ▶ (Pc + C) ▶ (C + En)			OA/DA	
6a.	(In + En) ▶ (Pn/c + En/c) ▶ (In + En)				SK/SSA
6b.	(In + En/c) ▶ (Pc + En) ▶ (In + En)				OA/DA
6c.	(In + En) ▶ (Pc + En) ▶ (In + En)				IA/ALI IA/CLHC
7.	(In + En) ▶ (Pn/c + Ec) ▶ (In/c + Ec)				SK/SSA QL/LQ
8.	(Ic + En) ▶ (Pc + Ec) ▶ (In/c - NE)		OA/DA		OA/DA IA/ALI
9a.	(Ic + En) ▶ (Pc + Ec) ▶ (Ic + Ec)	OA/DA	SK/AI CK/KC	SK/SSA SK/SSA SK/AI CK/KC	
9b.	(Ic + En/c) ▶ (Pc + Ec) ▶ (Ic + Ec)			SK/AI SK/AI SK/AI OA/DCA	
9c.	(Ic + Ec) ▶ (Pc + Ec) ▶ (Ic + Ec)			OA/DA	SK/AI IA/ALIs

Note. I = implicit, P = professed, E = Enacted, NE = not enacted, n = naïve, c = complex, C = context, NA = not accommodated.

^a Extended form of acronyms given in Table 6.

Each Pathway links beliefs and instances of classroom practice to Schommer's framework (Table 6) over the duration of the study. After discussion of each Pathway, the findings are incorporated into models of change which reflect participant belief characteristics.

Pathway One: Professed Epistemic Beliefs Clashing with Student Beliefs

The instances of practice grouped under this pathway reveal that initial naïve implicit beliefs were related to SSSK (Table 6). Informants adopted complex enactment roughly half-way through Phase Two, supported by discussion, interaction with colleagues, feedback, and guidance from course tutors. Complex enactment was achieved in the following areas: implementing varied lesson shapes to match aims and learner needs (CK-KC); challenging learners with task types requiring cognitive engagement (SK-SSA); helping learners discover (OA-DA) and develop a deeper understanding of the use of target structures (SK-SSA). Despite beliefs and teaching moving from naïve to complex, informants had reverted to enacting their initial naïve beliefs by the end of Phase Two due to learners' resisting the teaching approach. Informants voiced their frustration: "when you have got students who don't want to participate [activities promoting a constructivist approach]... it's actually harder to deliver a proper lesson' (Alice), and 'full of activities, strategy trainings, and ... none of them would pay attention ... that would be demotivating" (Beste), "it just demotivates me very much when they don't participate. It just makes me feel that I'm wasting my time" (Deniz).

Beliefs about SSSK under this pathway were close to core epistemological beliefs (Table 6), and I suggest such naïve core beliefs are more tenacious, tending to fall back to earlier enactment in the face of challenge or resistance (Goodman, 1988). Sustainable change in practice may require longer periods of reinforcement through

professional learning (Penner-William et al., 2019) in response to tension caused by the gap between core and new beliefs (Ng & Leicht, 2019; Phipps & Borg, 2009). Altering beliefs about SSSK may also require sustained evidence of long run effectiveness in promoting student learning before full adoption (Guskey, 2002).

Pathway Two: Learning Process Related Beliefs Accommodated and Enacted

Changes to beliefs under Pathway Two cluster around subsets related in the main to SCL (Table 6), namely practical, learning-related rather than epistemic beliefs. Instances of change in practice under this pathway relate to sufficient time for completion of activities (QL-LQ); revision of language points to connect with new language (QL-WT); seeking ways to involve unmotivated learners (IA-ALI); and incorporating strategy training (IA-CLHL). Alice comments on her positive experience: ‘I think I’ve learnt throughout the process that maybe the students are the ones that are more important, and everything [materials] should be adapted to give them the right support’. The aforementioned beliefs about learning worked for Alice, making her more ready to change beliefs and practice (Guskey, 2002), bolstered by what Nespor (1987) calls the affective and evaluative loading of belief characteristics.

Similarly, pressure from the course guided Beste to be more assertive with students. Seeing the effectiveness of the change, Beste evaluates her previous practice: “if I were kind of (a) strict teacher, a bit more, maybe they would have paid more attention, a bit more discipline (laughs) for me”. Again, SCL beliefs change more readily and as they reflect general learning related epistemological (Schommer, 2004), rather than epistemic beliefs (Schraw et al., 2017). Enactment persisted despite student resistance, also suggesting less susceptibility to contextual pressure,

assuming, of course, guidance is given by tutors to support successful student learning (Guskey, 2002).

Pathway Three (3a, 3b): Core Naïve Beliefs Harden after Negative Experiences

Pathway 3a illustrates the impact of deeply rooted beliefs stemming from the teacher's early experience as a learner. This supports Lasely (1980), Lortie (2002), Nisbett and Ross (1980), and Nuthall (2005) that early formed beliefs affect how individuals interpret and trick the new incoming information to fit their existing beliefs, hence making it difficult to change their existing beliefs (Clark & Peterson, 1986; Munby, 1982). Alice held strong implicit naïve beliefs about low-achieving, unmotivated students, believing them unwilling to learn. She preferred to ignore such learners and target high achievers. Tutor feedback and interaction with seasoned colleagues encouraged Alice to involve unmotivated learners in Phase Two for a short period of time. Due largely to the negative response of these learners, Alice's initial beliefs hardened, and she reverted, strongly reinforcing her original belief (Kember 1997; Kennedy, 1987). The contextual factors negated the gains in professional learning. In my view, a different context might have supported and sustained the positive change in enactment.

Pathway 3b combines masked naïve implicit beliefs and the impact of deeply rooted naïve beliefs related to teacher's willingness for professional development. At the outset of the course Elif expressed a willingness to accept and implement tutor feedback in her teaching, seeing it as an opportunity to further her professional development. While fairly receptive to course content in Phase One, in Phase Two Elif showed resistance when suggestions clashed with her strongly held beliefs about what good teaching was (CK-KC). She was selective and accommodated only those beliefs that were in line with her core beliefs. When pressurized to enact certain

complex beliefs, her pre-conceptions led her to failure. As a result, she showed tendency to criticize both the tutor and students, with the implication that her initial intentions were more effective.

Pathway Four: Professional Learning Course Inspires New Epistemic Beliefs

Here complex beliefs about the source and structure of knowledge that did not previously exist in belief systems can be accommodated within a relatively short time as a result of professional learning. Alice recognized the positive impact of reflecting on her practice (SK-SSA), underlining the motivational impetus of successful adoption of new beliefs (Clark & Peterson, 1986; Guskey, 2002; Shavelson & Stern, 1981; Smith, 2003): ‘I’m kind of focused on ‘Ha? What went wrong? How could I change it? How could I anticipate it?’ Maybe speak to people more before trying it in the classroom again, to try and get my confidence. So, because it’s obviously quite a big hit’. In the same vein, neither Beste’s early interview, reflection, journal entries, nor practice made reference to a need for detailed analysis of language points while planning or during delivery (SK-AI). I suggest both instances provide evidence that the design features of in-service learning can broaden a belief system, leading to enhanced practice.

Pathway Five (5a. 5b): Institution’s Support for Exam Practice Stymies Change

The sub-categories in Pathway Five illustrate how contextual conditions can lead teachers to enactment of naïve beliefs in the classroom even though it is not part of a teacher’s implicit belief. This supports Flores and Day (2006) and Pajares’ (1992) views on beliefs developing while going through a course of enculturation and social construction. Context and learner profile had an impact on the enactment of certain beliefs, fact which may differ in different school environments (Alzen & Fishbein, 1980; Cheng et al., 2009; Fives & Buehl, 2012; Freeman & Richards,

1993; Ham & Dekkers, 2019; Hoyles, 1992; Nghia, 2017; Verjovsky & Waldegg, 2005).

Pathway 5a illustrates naive Omniscient Authority (OA-DA) where teachers do not question, despite not reflecting a desired methodology, neither informant beliefs, nor the constructivist approach favored by the in-service program. Here teaching behavior is enforced by contextual expectations in the workplace (Eraut, 2004; Farrell, 2003). Student beliefs about how best to learn pressured Alice and Beste to teach in a certain way, leading to frustration: ‘it’s not true learning ... just learning for an exam, I want them to learn it in a way that would be useful and beneficial’. Alice had made no reference to exam preparation as part of her beliefs. She concedes: “in my experience here obviously the students are more exam motivated, that’s what they need to pass, so that’s why I move forward in that way”. Beste, too, stopped communicative activities and started implementing exam practice in lessons, despite a lack of belief in exam practice in class. She vents her frustration: “because they just want to learn to pass the exam, and then they just forget all about the information they received, so I think exams are (a) kind of obstacle”.

In a similar vein to Alice and Beste, Pathway 5b illustrates Deniz’s enactment of a naive belief about Omniscient Authority (OA-DA) despite holding complex implicit beliefs about checking learning. At the outset Deniz’s classroom behavior favored learning outcomes requiring the use of target language, i.e. communicative activities. From mid-Phase One onwards, however, contextual expectations, namely teaching to exams and exam task types, gradually impacted her classroom practice. Although she believed certain task types contributed to effective learning based on her own experiences as a learner, she did not enact them but adhered to workplace expectations. Despite strong complex beliefs and course content, Deniz found it

difficult to deal with lack of interest of her learners and their naïve beliefs about learning and teaching, and stopped enacting her complex beliefs, which resulted in a loss of teacher motivation.

Pathway Six (6a, 6b, 6c): Core Naïve Beliefs Curtail Professed Complex Beliefs

Pathway Six's sub-categories have commonalities with Pathway Three. In other words, the deeply rooted naïve beliefs of the teacher prevented new complex beliefs going through their beliefs filter (Brown & Cooney, 1982; Nespor, 1987), supporting the view that accommodating new beliefs is not always possible (Posner et al., 1982).

Elif held a deeply rooted belief about the simplicity of knowledge (SK-SSA), which stemmed from her success stories during her primary and secondary school years, affecting her beliefs related to both SSSK and SCL. I concluded her belief regarding simplicity of knowledge influenced her cognitive structure of teaching, as in Roehler et al. (1988). In Pathway 6a, Elif's preference for simplified knowledge is seen, rejecting unnecessary detail. In enactment she underestimated student learning ability, evidenced through giving explicit rules and displaying a lack of depth of understanding. Despite the course, Elif proved unable to enact the related complex belief, and although she made attempts during Phase Two to use some concept checking questions to elicit target language and rules, she never quite succeeded. Her questions were neither clear nor well organized and she reverted in Phase Three, once the course was over, to her original naïve enactment. In planning she rationalized this simplification of knowledge as a way of helping learners so that they did not need to study outside class, a projection of her own study habits as a learner.

In a similar vein to Pathway 6a, in Pathway 6b Elif enacts implicit naïve belief related to SSSK. Elif's interviews, lesson planning and delivery revealed a

perception that a teacher's responsibility is to provide knowledge. The course encouraged Elif to incorporate a discovery approach around mid-Phase One, but she reverted immediately. Similarly, at the beginning of Phase Two attempted to shift control to learners by introducing more peer checking and guided discovery. Notwithstanding, she shifted back to naïve enactment, lecturing the students, increasing use of humor related to learner performance, and appearing over-confident. Her classroom behavior became domineering in Phase Three, despite some elements of peer checking and peer evaluation.

Pathway 6c reveals deeply rooted naïve beliefs related to SCL. Despite course content and interaction with seasoned colleagues, implicit and enacted naïve beliefs about control of learning (IA) did not change. Throughout the three phases, Elif did not provide sufficient guidance and clarification for learners to complete tasks (IA-ALI); for strategy training (IA-CLHL), while able to provide sufficient strategy training in receptive skills, she was unable to show similar competence in language systems lessons - teaching grammar. On the one hand I saw that Elif was able to respond in a complex manner to situations which did not require deep understanding, for example explaining how to find answers to comprehension questions. On the other hand, language systems lessons, required her to be more analytical but enactment remained naïve. My analysis supports the view that Elif's deeply rooted naïve beliefs about the simplicity (SK-SSA) and speed of learning (QL-LQ) directly influenced her beliefs about learners' ability to learn (IA-ALI).

Pathway Seven: Constructivist Enactment with Little Understanding

Pathway Seven illustrates more strongly held central beliefs which have psychological strength, as discussed in Green (1971) and which become the values and attitude of individuals (Rockeach, 1968). Elif's preference for using fun in

lessons is an example of a belief with psychological strength, a belief which affected her understanding of the structure of knowledge. At the outset Elif was more concerned whether students were entertained in her lessons rather than being cognitively engaged. She skipped asking students to justify answers when it was crucial to do so in her lesson stages. She reasoned that students were asked for justification of answers for other activities in the lesson; her main concern was that they might get bored (SK-SSA). This ties in with the characteristics of her favorite teachers at school, and projects her naïve understanding of how knowledge is formed.

From second half of Phase Two, Elif's reflection on her practice projected some improvement in her understanding and enactment of beliefs regarding the complexity of knowledge. The fun element was less of a priority, probably due to the constant feedback and guidance provided by course tutors. In Phase Three, Elif displayed deeper understanding of the purpose of activities; she had realized that learning required hard work, not a quick process, which motivated her professing complex beliefs. Yet, the element of fun came to the fore again, which suggests that although the professional learning experience might have raised her awareness of the complexity of knowledge, the fun element became prominent once the pressure of the course was lifted. Her classroom enactment thus showed a mixture of complex beliefs and overuse of the fun element.

To me the implementing element of fun excessively was a sample of conditional knowledge, where the teacher possessed images of the fun element from her early school experiences, but probably did not yet have the knowledge to think more critically about how to adapt it appropriately for to use in her lessons (Calderhead & Robson, 1991). She had merged her existing implicit naïve beliefs

and the professed complex beliefs promoted on the certificate course (Posner et al., 1982). This apparent contradiction reflects Anderson's (1983) argument about the dichotomy between beliefs and knowledge.

Pathway Eight: Masked Beliefs Hinder Constructivist Enactment

Pathway Eight illustrates masked naïve epistemological beliefs, the existence of which the teacher herself was not aware. Beste presented an implicitly held complex belief about experiential learning (OA–DA), related to SSSK, but which she did not enact. I surmised that “how to” was absent from episodic memory and with guidance from the in-service course she achieved complex enactment. Despite apparent assimilation, Beste returned to naïve practice in response to a negative reaction from students.

Only after further analysis of her initial interview about her background did a possible underlying reason for reversion become apparent. The original belief assigned to her was not her true belief, but was dichotomous, both complex and naïve. When avowing a complex belief about the importance of experiential learning, Beste still voiced criticism of one of her high school teachers for employing experiential learning when he could simply have provided answers. Several explanations for Beste's action present themselves: either Beste's naïve belief was subconscious (Buzeika, 1996; Harrison & Lakin, 2018); or she was deceiving the hermeneutic researcher (Robinson & Kerr, 2013) by professing a belief to fit the professional learning model; or, the tension apparent in her episodic memory had still not resolved itself and was playing out in the new context, needing more time (Kennedy, 2016). The complex belief was professed, whether consciously or not, whereas I believe the naïve belief represented her true core belief.

I realized much later that Elif had masked epistemological beliefs which she herself was seemingly not aware of. In all her interviews she expressed the view that making mistakes was a natural part of learning (IA-ALI), both for language learners and for herself in the odyssey of her professional development. She appeared at first sight to enact this belief by correcting learners' mistakes and giving clarification. However, the manner in which her interventions were carried out confirmed in my mind she was making fun of the learners and their mistakes. Her manner, and her comments about her learners, became even more pronounced as she gained more experience in the work context. My initial interpretation was that she had been trying to create a friendly learning environment. However, only after further analysis of her background did I become aware of her making jokes about her learners' mistakes.

The initial impression Elif gave was of professing complex beliefs but, when looking into her background, I realized that she had had star status in her primary and secondary education, winning awards. She had experienced no failure and had accomplished tasks in a short time without putting in much effort. Therefore, the enacted belief represented her true core belief regarding (IA-ALI). The true belief was hidden and naïve, suggesting Elif's belief was subconscious (Harrison & Lakin, 2018). However, when talking about her own professional development, Elif considered mistakes as part and parcel of her professional learning, allowing improvement through reflection (OA-DA). While more tolerant towards her own mistakes, she perceived them as part of learning, she was not able to project the same understanding towards learners. Individuals can show varying attitudes according to circumstances without necessarily being aware of it (Skott, 2001).

Pathways Nine (9a, 9b, 9c): Epistemic Beliefs Assimilated and Enacted

Pathway Nine assembles three closely related subsets, namely, 9a, 9b, and 9c, which show complex beliefs at the outset enacted in a naïve manner due, it appears, to a lack of samples of effective practice in episodic memory.

Alice and Beste's beliefs were a reaction to early exposure to a traditional style of teaching. Early learning made them realize the importance of scaffolding learning to help learners discover language use (OA-DA); integrating language systems and skills work to enable contextualized language practice (SK-AI); or varying lesson shapes (CK-KC). Their case illustrates that pedagogical content knowledge can differ from teacher's general pedagogical knowledge (Borg, 2006) due to exposure in school years (Carter, 1990).

Deniz was the informant with the most complex beliefs, as indicated by the number of examples of her beliefs under Pathway Nine, when compared to Alice and Beste. Her case differs slightly in that she had exposure to instruction where knowledge was contextualized and applied (SK-AI); where teachers ensured the right amount of challenge (SK-SSA); and where certain task types exposed her to the importance of having deeper levels of understanding of subject matter (SK-SSA). However, her foreign language classes lacked such features, about which she expressed her dissatisfaction on several occasions in her interviews: "a teacher who basically just came to class, taught a couple of things ... it wasn't anything well-structured ... there wasn't anything like a pre-task, post-task, nothing like that". Thus, despite her understandings in other subjects, in the case of teaching a foreign language she was not exposed to a wide repertoire of activities.

Observing colleagues along with demo-lessons on the in-service course, followed by discussion and reflection, enabled Alice, Beste, and Deniz to enact their

complex beliefs, suggesting that reflection had an impact on practical teaching (Calderhead, 1989; Russell & Munby, 1992). As their complex beliefs were already manifest, they created alternatives to previous experiences (Nespor, 1987) and changes in enactment were assimilated in a short period of time, despite student resistance. They did not revert to naïve enactment, suggesting beliefs about SSSK were deeply rooted, similar to Pathway One, corroborating evidence in the literature on the impact of early experiences on teaching and teacher learning (Clandinin & Connelly, 1987; Nghia, 2017).

Pathway 9b is an extension to Pathway 9a. Deniz's implicit beliefs at the outset were complex, deeply rooted, and clustered around SSSK. Her beliefs related to: recycling and building on students' existing knowledge (SK-AI); linking information to real life situations (SK-AI); presenting grammar in context (SK-AI); critically analyzing coursebooks and adapting them to fit beliefs, linked to real-life situations (OA-DCA). These areas, frequently mentioned by Deniz, were promoted in classes during her attendance at International Schools. However, her enactment of these implicit beliefs was inconsistent, hence a sub-Pathway to differentiate this fact.

From the data, her attempt at implementing the complex beliefs learnt from her school days in social science and science classes showed irregularity due to a lack of exemplars in episodic memory regarding foreign language learning and teaching. As in Pathway 9a, interaction with seasoned colleagues, and course content led her to rapidly enact, and keep enacting these complex beliefs, despite student resistance.

Pathway 9c further extends the manner in which Deniz enacted her implicit beliefs related to SSSK. Her lesson planning revealed her expectation that students take responsibility for their learning by completing pre-tasks assigned the previous

day (OA-DA): “especially ... either before an important exam or ... [when] we have done the exam [and after] they have seen what they have done ... I give them options - Think what you need before going into this exam, how should we structure our lessons for this week?”. Deniz is here giving an example of how she gave students responsibility for their own learning (OA-DA), thus widening her repertoire. As she states: “the experience I went through has helped a lot, and having hands on experience, basically, you know struggling so much but learning ... helped me a lot ... and the help I get from other teachers or the help I get from xx [course]”. Even with challenging groups of learners, Deniz persisted in assigning tasks where students were expected to take responsibility for their learning.

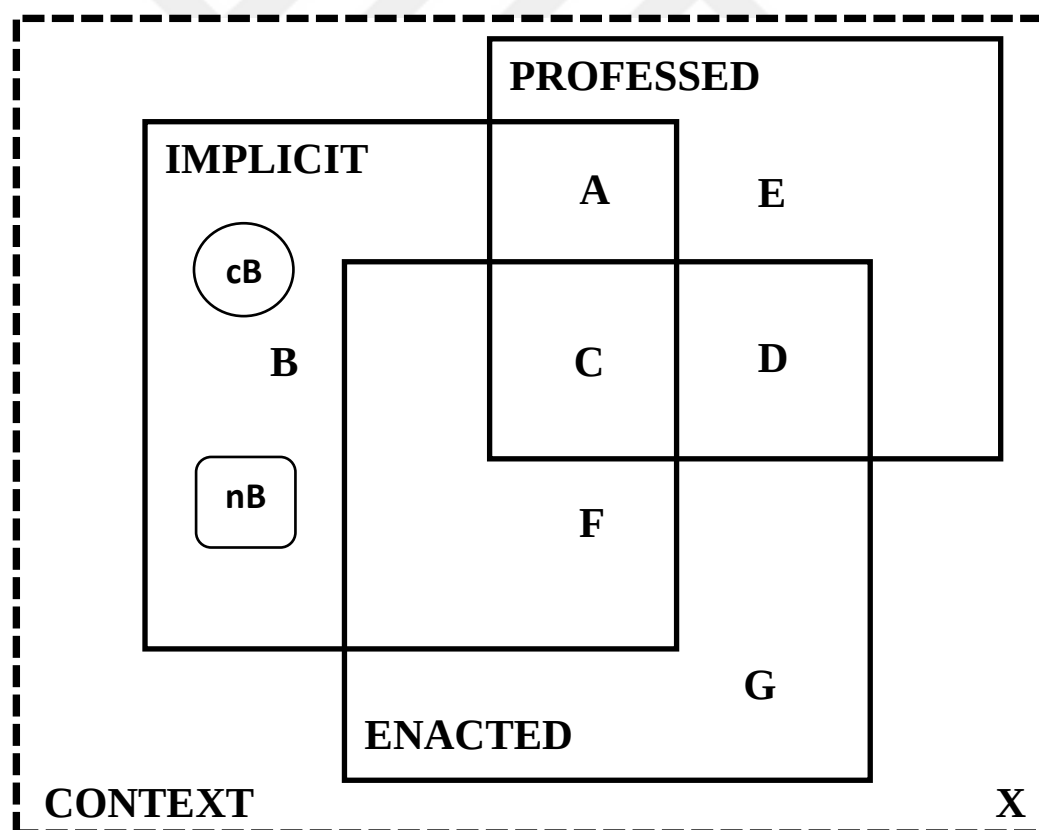
Similar to Deniz, Elif started off with implicit complex beliefs related to both SSSK and SCK, with complex enactment despite student resistance throughout all three phases. Similar to Deniz, it was important for Elif that students were motivated and took responsibility for their own learning by participating in lessons. She also linked the use of the target language to real life situations, incorporated personalization in her lessons and expected students to apply the language rules in practice. Here what differentiates Deniz’s belief patterns from Elif’s is that Deniz was able to explain in-depth the rationale for her actions and its contribution to learning, whereas Elif’s reasoning reflected creating opportunities for fun. The inconsistency between how Elif interpreted her classroom practice and how it is interpreted in general showed parallelism to Raymond’s (1987) study on teacher beliefs and how these can influence interpretation of classroom practices. I believe, Elif’s interpretation had less to do with lack of terminology (Leatham, 2006) to express her beliefs because this state of affairs did not change, even after completion of the formal course, during which she had had ample exposure.

Modelling Informant Changes in Implicit, Professed and Enacted Beliefs

The three shifting, overlapping zones of implicit, professed, and enacted beliefs are visualized in Figure 13, with a Goldilocks's Zone C, mirroring the extent to which, in any given context, constructivist beliefs and classroom practice are congruent (namely, where implicit, professed, and enacted complex beliefs overlap). One can extrapolate that the bigger this zone, the better the outcomes in terms of meeting the aims of the training program. Implicit beliefs are encompassed in area B, complex (cB) or naïve (nB). Professed constructivist beliefs targeted by the in-service course appear in E. Implicit complex beliefs and professed beliefs, by

Figure 13

A Seven-Zone Model: Overlapping of Implicit, Professed, Enacted Beliefs



Note. X = context; belief types = implicit, professed, enacted; quadrants formed by overlap = A, B, C, D, E, F, G; cB = complex implicit beliefs; nB = naïve implicit beliefs. C = Goldilocks Zone.

definition, overlap in A. Area D represents the space in which the in-service course links professed beliefs to enactment. G shows enacted beliefs, and all takes place within a context X.

Quadrants A to G describe a seven-zone model which is used in what follows to differentiate the nine pathways in relation to the initial beliefs of the four informants. First in line in Figure 14 is the case of Deniz who registered complex average beliefs in the survey at the outset of the study. Then follows pathways for Best and Alice who displayed average beliefs on the survey, shown in a combined format in Figure 17. Finally, Figure 18 collects the pathways of Elif, whose average on the initial survey represented the most naïve beliefs amongst the informants.

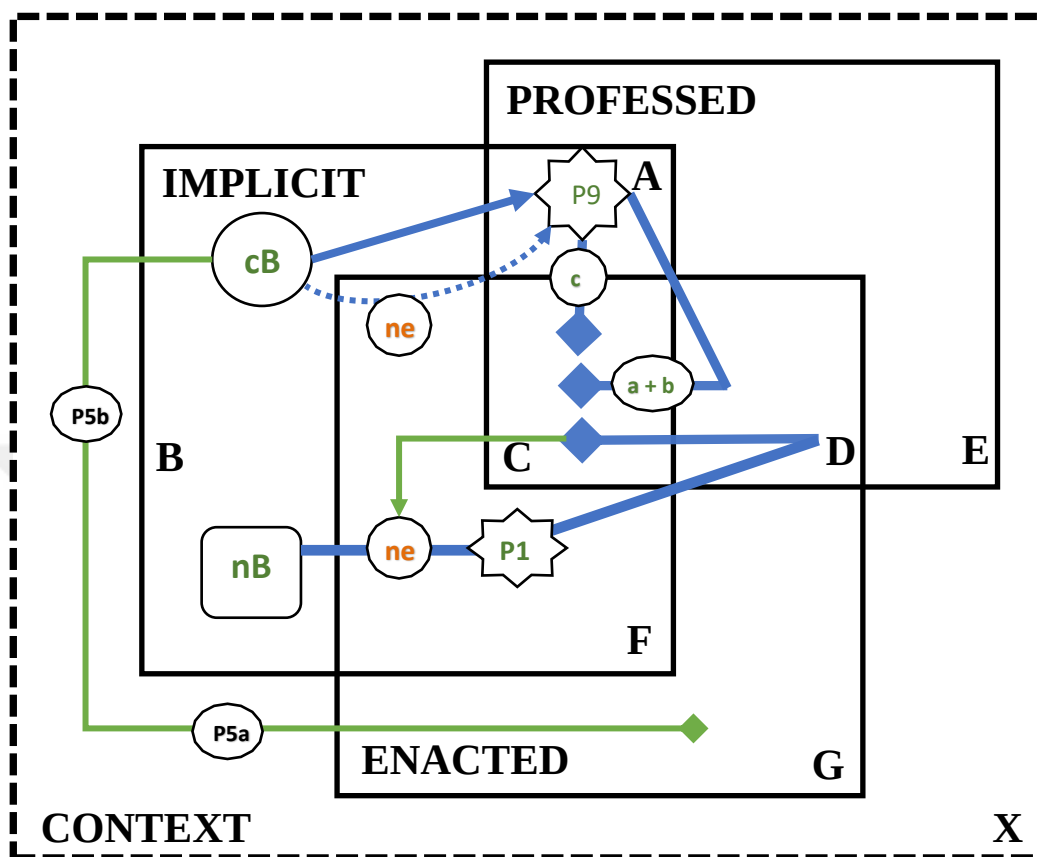
Pathways within the Seven-Zone Model

Initial or Final Complex Beliefs across the Nine Pathways – the Case of Deniz

The analysis of the data as illustrated in P9 (a + b) in Figure 16 shows Pathways starting off from implicit complex beliefs do not necessarily follow a path in which enactment was initially complex. In these pathways, enactment was naïve in the first instance due, the data suggest, to a lack of examples of good practice in episodic memory. The naïve enactment was resolved through interaction on the course and led quickly to complex enactment (a short time in quadrant D), with P9b resolved more quickly than P9a. In the case of P9c, complex beliefs were coupled with the immediate ability to enact the belief, hence a direct move to quadrant C in Figure 16. What is interesting from the data is that, despite complex beginnings, naïve enactments appear to be the rule rather than the exception; the number of initially naïve classroom practices in this case-study exceed those which lead straight to complex enactment.

Figure 14

Pathways for Deniz – the Informant with the Most Complex Beliefs



Note. X = context; belief types = implicit, professed, enacted; quadrants formed by overlap = A, B, C, D, E, F, G; cB = complex implicit beliefs; nB = naïve implicit beliefs; P = Pathway, ne = naïve enactment.

It cannot be assumed, therefore, that those with complex beliefs are able to enact them immediately in a new work context, as Table 16 shows. Deniz was the informant with the highest number of initially complex pathways, which correlates with her position at the outset of the study as the informant with the highest average complex beliefs in the survey. This suggests a relationship, in this context at least, between complex beliefs and the ability to apply a constructivist teaching approach and assimilate rapidly. For pathways in which Deniz did not realize final complex enactment when starting with a complex belief, the naïve enactment outcome came

from contextual requirements from an external authority, either students demanding exam style lessons, or the institution responding to student demands and sanctioning teaching to exams (P5b). The teacher felt obliged to enact a naïve practice due to workplace pressure. There was one other case, Pathway One, where Deniz started with a naïve belief but achieved complex enactment, only to be confronted with student resistance which demotivated her, causing a return to her initial practice

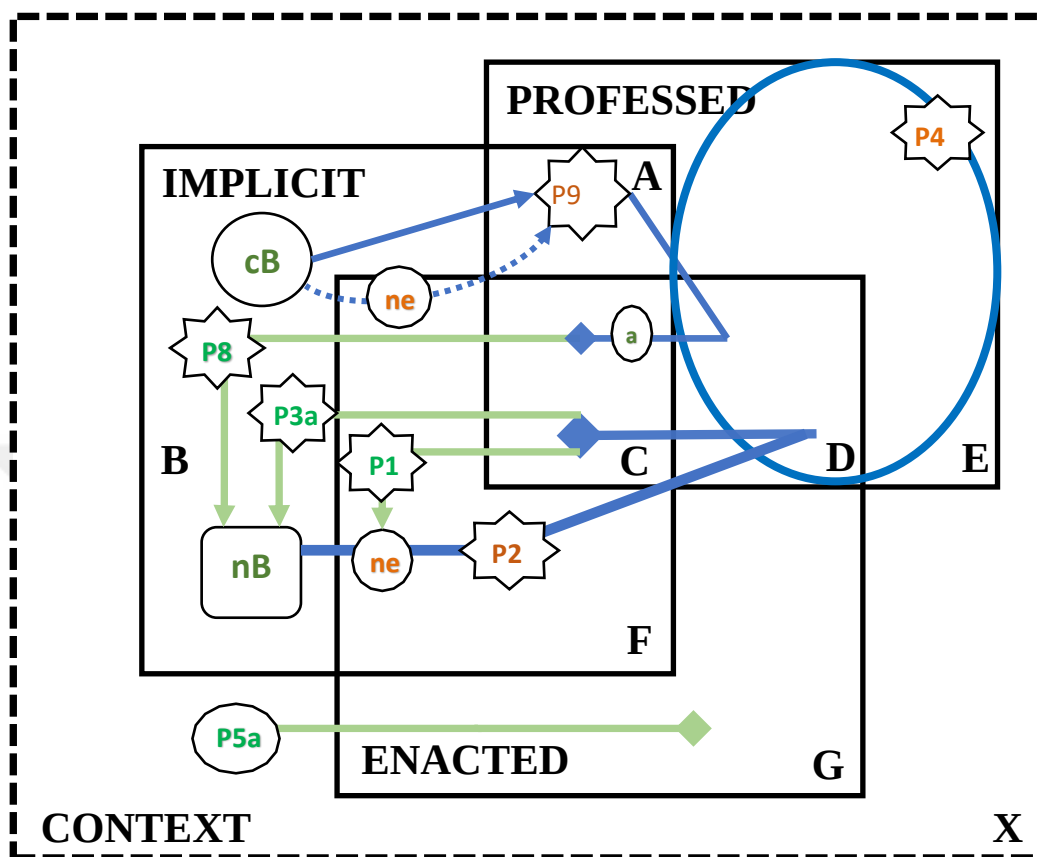
Mixed Belief Patterns across the Nine Pathways – the Case of Alice and Beste

The initial survey to the study provided the criteria on which the selection of informants was made, and placed Alice and Beste in the average beliefs category. The Pathway profile of these two informants is shown in Figure 15. What is immediately obvious is that the majority of their implicit beliefs started in the naïve category, all which without exception are followed by naïve enactment. Pathways Eight and 9a, discussed further below, are an exception in starting with complex beliefs.

The paths of belief changes cluster around Pathways One and Two. Pathway Two appears to show change which has endured, i.e., enactment remains complex. Pathway One, on the other hand, shows no significant long-term change. Thus, enactment in the latter case did not continue after the course, despite the fact that both Pathways 1 and 2 followed similar trajectories at the outset, as illustrated in Table 16. This may suggest that, in general, changes to factors 1 to 3 in Schommer's model are more resistant to quick change as they concern epistemic beliefs, as opposed to factors 4 and 5 which concern the speed and control of learning (Table 6). Epistemic beliefs appear more deeply seated, closer to core beliefs, and therefore relatively intransigent.

Figure 15

Pathways for Average Belief Informants - Alice and Beste



Note. X = context; belief types = implicit, professed, enacted; quadrants formed by overlap = A, B, C, D, E, F, G; cB = complex implicit beliefs; nB = naïve implicit beliefs; P = Pathway, ne = naïve enactment.

What is again clear from Figure 15 is that change in implicit beliefs can be positively accommodated through a formal professional training course (areas in blue), but other factors (in green) may impede progress towards constructivist practice. The results raise the issue of the role of belief types in change. Certain belief types, epistemic in this context, seem less open to change, particularly in the case of resistance in the school context. Student and institutional factors which militate against constructivist teaching may inhibit desired change in methodology as well as have a negative effect on staff morale, in this case new members of the

school community. On the positive side, the role of a training course may spur new learning and have a positive effect on teaching quality (Pathway Four), but a caveat is raised by Pathway Eight where beliefs hidden to the informant, that is which are subconscious, may make it difficult for teacher educators to detect belief profiles for long term change.

Beliefs starting with true complex, Pathway 9a, not Eight, despite naïve enactment initially, showed assimilation within regular timeframes. Here the issue was a lack of exposure to a repertoire of practice to allow complex beliefs to be enacted. The course provided the repertoire. Thus, complex beliefs can be realized and successfully sustained for those with average beliefs, despite the presence of workplace issues. However, in this scenario, the lack of congruence between workplace expectations and practices, as well as what might be termed ambivalence towards the methods used, represent a threat to in-service training and avowed constructivist aims.

Mainly Naïve Belief Patterns across the Nine Pathways – the Case of Elif

In the case of Elif, the informant with the most naïve average beliefs amongst the four, the Pathways again reveal complex patterns of belief change over time. Elif had strong core beliefs which appeared to hinder her adoption of the desired constructivist practice. This is exemplified in Pathways 6a, 6b, 6c where, despite professing complex beliefs and attempting enactment, her practice remained blocked on naïve and, once the course was over, she reverted to her original naïve beliefs and practice (Figure 16). Pathway 3b shows a similar reversion to initial beliefs, but, in this case, there was little attempt to accommodate to new methods, and when the course pressure was off, she continued with her core beliefs and practice.

professional learning were analyzed for commonalities and summarized under a set of nine main pathways which illustrate patterns of change in implicit, professed, and enacted beliefs. A set of models which display the changes graphically for those with different initial belief profiles revealed the complexity of change over the period of the study in terms of teachers' implicit, professed, and enacted beliefs.

A standard set of teaching skills cannot be assumed for teachers relatively new to the profession arriving in a new workplace. Teachers' background beliefs appear to exert an important influence on the way that they progress through their first years, despite the benefits of a professional learning environment in the form of a course. The results of this longitudinal study show that patterns of change in beliefs are diverse but, when categorized using an analytical tool, they are shown to respond in a discernable way to initial epistemological beliefs and workplace characteristics. In the chapter which follows the significance of the study and the results will be discussed in relation to the study's research questions and referenced to the relevant literature. Subsequently, the study's relevance for practice both in teaching and teacher education will be discussed, with suggestions for further empirical research into the impact of epistemological beliefs, while acknowledging limitations to the current study.

CHAPTER 5 DISCUSSION

Introduction

This Chapter brings together the literature, research approach, methods, and findings to answer the research questions formulated in Chapter 1. In what follows, an overview of the scope and significance of the study is presented, followed by a breakdown of findings under each research sub-question with a view to addressing the main research question. Findings are situated in relation to the Pathways and model outlined in Chapter 4, in combination with a review of their significance within the relevant literature. The Chapter then moves on to a discussion of the implications of the research findings for practice, as well as implications drawn from the case-study for further research. Finally, the limitations to the study are discussed prior to addressing concluding remarks for the study as a whole.

Scope and Significance of the Study

This longitudinal, mainly qualitative case-study set out to explore the relationship between the personal epistemological beliefs and classroom teaching of four new or early career teachers, purposively sampled from a cohort of 24 on a year-long in-service professional learning course, and beyond, in a university preparatory language school in Turkey. The teachers were newly recruited English language teachers, and the in-service course was a part of their induction to their new workplace.

The case-study explored the four informants' personal epistemological beliefs on arrival in the workplace, and the level of congruence over the duration of the in-

service course, and beyond, between implicit and professed beliefs, and the enactment of those beliefs in their classrooms. In particular the study sought to ascertain whether implicit/professed epistemological beliefs and their enactment changed in response to the in-service certificate course. If so, when, how and why they changed, and whether such changes were sustained beyond the course. The research sought to extend our understanding of how personal epistemological beliefs progress in a professional workplace setting in relation to classroom enactment, over a significant timescale of one and a half academic years, divided into three phases, each of which encompassed one semester.

The in-service certificate, induction program required attendance at weekly seminar sessions during the first year of employment over two semesters. A minimum number of informal and formal observations with pre- and post-conferences were mandatory, as was production of related documentation in the form of pre-observation lesson plans and post-observation reflection. The course also required a number of formal written assignments related to seminar content and the focus of observation cycles. The program embodied a constructivist approach, and participants received certification for successful completion from a reputable, external professional body.

The case-study, focusing on personal epistemological beliefs as part of in-service certificate program, extended our understandings in critical ways. It extended our in-service knowledge of personal epistemological beliefs beyond many existing pre-service studies. It allowed the influence of context and the workplace on beliefs to be evaluated within its framework. It allowed a systematic and structured discovery of knowledge about belief change during in-service learning. It had a strong empirical base in connecting beliefs to classroom practice to balance the many

theoretical claims made in the literature. Finally, it was sobering in its exposure of potential limitations to belief change through in-service teacher education programs.

The theoretical framework for the study used Schommer's 1990 complex versus naïve dichotomy developed in researching the epistemologies of science and social science students. Five factors and twelve subsets were found by Schommer to frame epistemological beliefs, distinguishing between a traditional, non-constructivist approach to learning, termed naïve, or a constructivist orientation to learning, termed complex. Schommer argued epistemological beliefs vary between subject areas, with others suggesting they might even differ between contexts. Schommer distinguished between those factors, three in number, related to the source, stability, and structure of knowledge (two subsets per factor), and those, two in number, related to the speed and control of learning (three subsets per factor; Table 6): a total of twelve subsets.

Schommer's study was bounded in time. The study presented here encapsulated dynamic change in belief patterns over an extended period of 18 months and also enlarged the scope and application of Schommer's general epistemological beliefs framework to teachers' beliefs about English language teaching and learning, and professional learning, within a formal in-service teacher education program. Belief patterns were not considered dichotomous by Schommer, rather distributed across a range. The premise underlying Schommer's framework is that complex beliefs are more successful determiners of learning because they reflect a constructivist approach to knowledge creation. As the in-service course emphasized a constructivist approach, it was hypothesized that informant beliefs would change over time to reflect this emphasis; that is, their beliefs would assimilate or accommodate to reflect and enact a constructivist teaching approach.

Table 6*Areas of knowledge, factors, and subsets, and three belief areas*

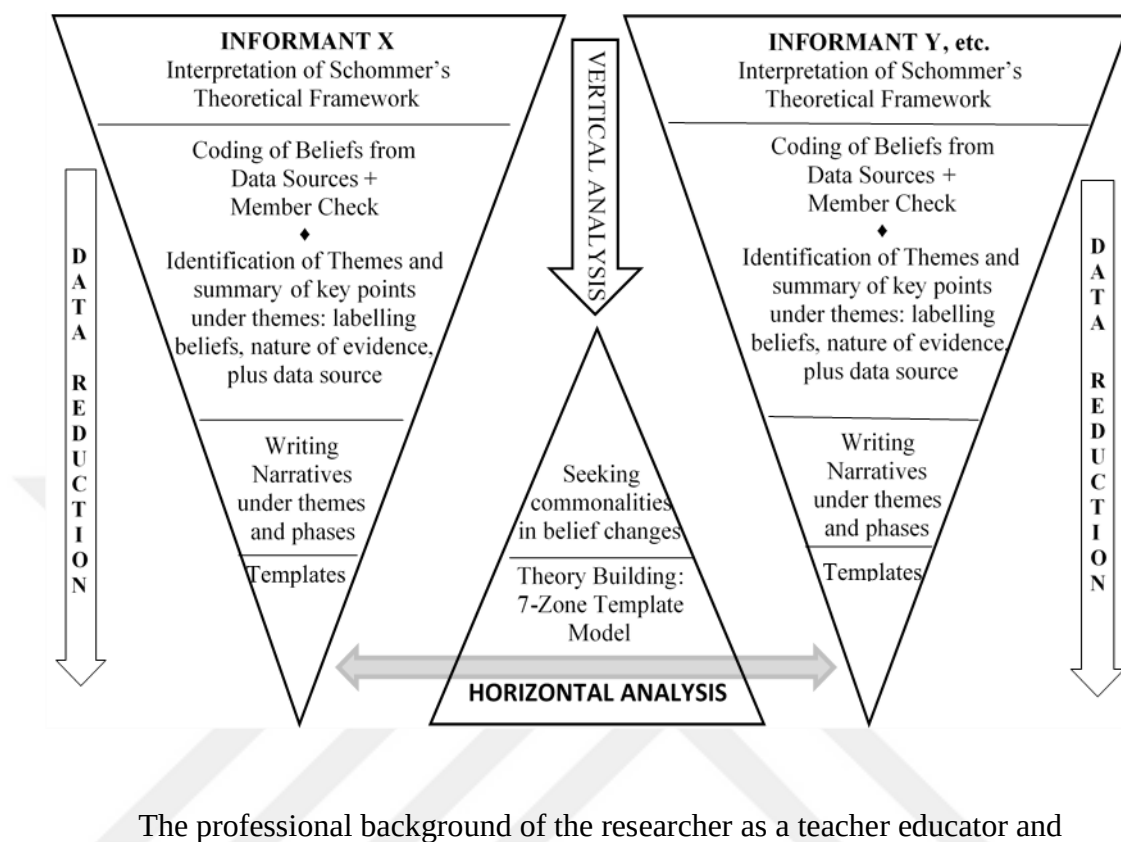
Two Areas of Knowledge	Five Factors	Twelve Subsets	Three Areas of Beliefs
Source, Stability, and Structure of Knowledge (SSSK) Subsets 1-6	Simple Knowledge (SK) 1+2	1 Seek Single Answer (SSA) 2 Avoid Integration (AI) 3 Avoid Ambiguity (AA)	Knowledge and Knowing (KK)
	Certain Knowledge (CK) 3+4	4 Knowledge is Certain (KC) 5 Do not Criticize Authority (DCA)	
	Omniscient Authority (OA) 5+6	6 Depend on Authority (DA) 7 Cannot Learn how to Learn (CLHL) 8 Success is Unrelated to Hard Work (HW)	
	Innate Ability (IA) 7+8+9	9 Ability to Learn is Innate (ALI)	
	Quick Learning (QL) 10+11+12	10 Learning is Quick (LQ) 11 Learn for the First Time (LFT) 12 Concentrated Effort is a Waste of Time (WT)	
Speed and Control of Learning (SCL) Subsets 7-12			Language Learning and Teaching (LLT) Professional Learning (PL)

The analytical framework adopted an encompassing case-study design resulting in four narratives (Chapter 4), each giving a vertical analysis of informants' journeys in terms of beliefs (implicit and professed) and their enactment throughout the certificate program and workplace induction. The development of individual narratives, coupled with Schommer's theoretical work used as an analytical tool, allowed significant patterns to be detected (Figure 17), which then contributed to a detailed horizontal, intra-case analysis across the four embedded subunits in the form of Pathways, incorporating both a bottom-up and top-down perspective. An essential element to the case-study was the incorporation of a classical hermeneutic framework implicating researcher and informants in an ongoing dialogue over the

length of the study in order to build consensus in the interpretation of informant beliefs. Detailed records of encounters with informants were kept, supplemented with documentary evidence including interview transcriptions, field notes, lesson plans, lesson reflection documents and informant diaries.

For each of the three stages separately, informants' personal beliefs were analyzed to assess the relationship between those beliefs and classroom practice. Initially, using HyperResearch™, units of data were interpreted and coded under the appropriate subsets, and categorized as exemplifying either a naïve or complex belief. Exploring informants' situated cognition, in other words, focusing on the impact of the workplace and contextual variables on the development of beliefs and their enactment over the period of the study, was an important lens in the analytical framework, as was Woods' (1996) concept of hot spots in bringing a telephotographic lens to home in on significant interactions as the case-study progressed.

The focus on practice for each phase for each informant represents a significant aspect of the study as it allowed for conclusions to be steeped in empirical data over time. The categorization of data using Schommer's factors and subsets as an analytical tool (and a theoretical framework) permitted a systematic comparison of change tied to a recognizable benchmark and model, for each phase. The transcription or documentation of all data (interviews, classroom observation, etc.) permitted checks on assignment of categories (subsets, naïve, complex) by other independent judges. The analytical framework and the interpretative nature of the hermeneutic relationship between researcher and informants gave access to a deeper understanding of the background and personal beliefs of participants.

Figure 17*Data Processing and Analysis*

The professional background of the researcher as a teacher educator and proximity to the course was also a significant factor for this study given the very nature of epistemological beliefs. Personal beliefs explored were at the same time related to teaching and learning, plus professional learning, and given the difficulty of interpreting beliefs, as signaled in the literature (cf. Chapter 1), the researcher's closeness to and familiarity with the context enhanced the quality of perceptions. Inevitably, from a more positivistic perspective, this can be criticized as a less reliable approach to knowledge, to be discussed in more detail later in this chapter. However, case-studies using this analytical framework within a specific context, as argued in Chapter 3, are not focused on a single truth which may not exist, but more on creating a credible analysis, backed up with open documentation of sources and methods, which can expand understanding and contribute to theory building, and also

offer the possibility of future verification or empirical confirmation within a more inferential approach.

Although not a main focus of the study, data collection did incorporate some statistics, tested for reliability (Cronbach Alpha and Inter-item Reliability), part of a survey as a means for purposive sampling of informants (cf. Chapter 3). This added an alternative data source for post-comparison with interpretation of the primary data sources in that the survey was given at the beginning and end of the study. Although this has played a minor role in the overall conclusions to the study, the data were used as a mirror of curiosity rather than inferential speculation in order to see whether there were connections between questionnaire responses and the empirical process and conclusions underlying the hermeneutic analysis.

Summary of Findings

The main research question was: How does transitional learning on a formal in-service training course affect a sample of newly recruited international and national teachers' personal epistemology about learning in general, and language learning in particular? An encompassing answer to this will be discussed after examining the sub-questions in turn.

Sub-question One

What are the general and language learning related personal epistemologies of early career English language teachers on a structured induction course when in a new workplace context?

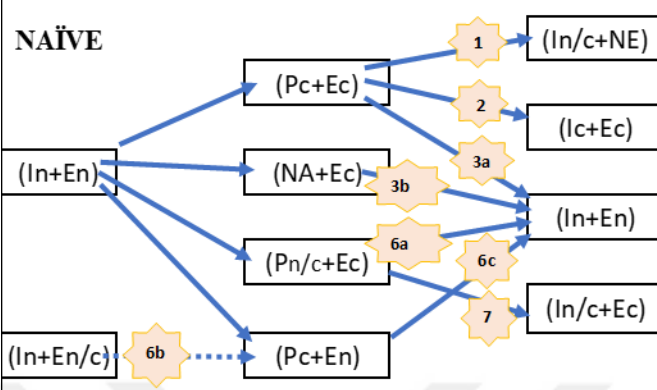
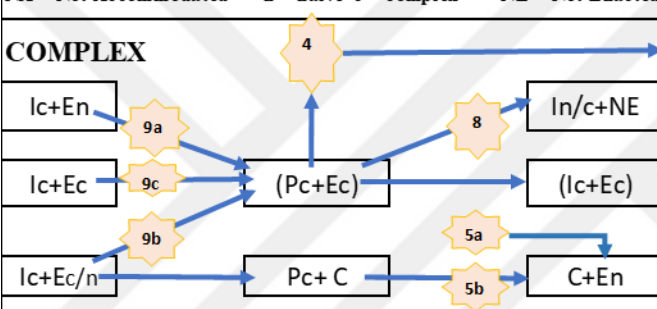
1. The personal epistemological belief profiles of the four informants showed marked differences at the outset of the case-study when new to the workplace and starting the in-service certificate course. This variability in personal epistemological beliefs, as determined by applying Schommer's analytical

category subsets, is evidenced in informants' opening implicit belief patterns.

From the horizontal analysis of the embedded cases (Figure 18), nineteen of the belief-related subsets identified under the nine pathways began with "naïve" beliefs spread more or less evenly between three of the four informants. Ten of the twenty-two initially "complex" belief subsets were accounted for by one informant, Deniz.

2. The survey data, used for purposive sampling, matched in general terms the initial profiles of the four informants as determined by the in-depth qualitative analysis. For example, Deniz was selected for the study as an informant who represented complex beliefs, corroborated by the case-study data. Out of the 11 subsets attributed to her, 10 are in the complex belief category at the outset of the study.
3. Deniz's personal epistemological beliefs tie in with her previous background, early life experience, and education. These initial beliefs are clustered in the first three factors in Schommer's analytical categories (Table 6), suggesting she had strong constructivist beliefs at the outset of the case-study in relation to the source, stability, and structure of knowledge. These three factors are considered to be representative of general beliefs about the nature of knowledge. The initial sophisticated understandings shaped Deniz's outcomes.
4. Elif, on the other hand, was surveyed as the most naïve of the four informant in terms of personal epistemological beliefs, again borne out by the data in which seven out of her 11 subsets are in the initial naïve category. The outcome data (Figure 16) also show that, of four initially complex beliefs, two turned out to be masked beliefs. In other words, the data suggest that these were naïve beliefs

Figure 18*Analysis of Pathway Outcomes Compared to Initial Beliefs*

INITIAL POSITION	COURSE INTERACTION	OUTCOMES	Alice	Beste	Deniz	Elif	TOTAL
NAÏVE		(In/c+NE)	3	3	1		7
		(Ic+Ec)	2	2			4
		(In+En)	1			5	6
		(In/c+Ec)				2	2
NA = Not Accommodated n = naïve c = complex NE = Not Enacted Total: initial naïve subsets							19
COMPLEX		(In/c+NE)	1	1			2
		(Ic+Ec)		1		2	3
		(Ic+Ec)	1	2	9	2	14
		(C+En)	1	1	1		3
I = Implicit E = Enacted P = Professed C = Context Total: initial complex subsets							22

Note. I = implicit, P = professed, E = Enacted, NE = not enacted, n = naïve, c = complex, C = context, NA = not accommodated. 1-9 = Pathways

masquerading as complex beliefs (Pathway Eight) and, therefore, that her initial number of naïve beliefs was proportionately higher than the analysis suggested at the outset.

- For Alice and Beste, their average survey results also reflect the analysis of their initial beliefs, with Alice slightly more in the naïve category (Figure 15). As the data show, they do not necessarily share the same subsets (Table 16), suggesting that their “naïve” belief areas can differ epistemologically, despite the “average” label.

6. The extended embedded case-study narratives in Chapter 4 reveal a connection between the sophistication of informants' initial personal epistemological beliefs and their backgrounds and early life experiences, with their education appearing to have a particularly strong formative role in shaping core beliefs about learning in general and language learning in particular.
 - Deniz had an International Baccalaureate school education, noted in education circles for its global and constructivist approaches, which is reflected in her constructivist understandings related to knowledge creation.
 - Elif was educated in a traditional, small school setting promoting rote rather than constructivist learning. She was heavily involved in extra-curricular activities, winning awards without needing to invest much cognitive effort. Elif's achievements made her a star for her teachers in the small local context in which she grew up.
7. The data further suggest that on entry the four informants, as a group, held a mix of sophisticated and less sophisticated understandings as regards constructivist education (Figure 18). A constructivist approach was targeted on the certificate course, but initial beliefs did not necessarily reflect this approach. Despite informants being fresh from pre-service education, or from early career experience, a constructivist beliefs profile was not in evidence in three of the four informants.
8. Informant personal epistemological profiles were differentiated both in terms of sophistication/complexity of beliefs and the mix of belief categories, using Schommer's analytical framework.

Sub-question Two

How do these personal beliefs relate to their performance in the classroom as they transit the course?

1. Approximately 50% of coded subsets showed complex implicit beliefs at the outset of the study (Figure 18). However, in only one of the pathways were informants able to fully enact their complex belief in the classroom (Pathway 9c), and partially enact in a complex manner in a further four subsets (Pathways 5b, 9a, 9b). Thus, out of a potential total twenty-two instances of complex belief subsets in the study, only seven were enacted in the classroom in a partially or fully complex manner, namely in around 30% of them.
2. The data suggest, then, that even when informants were seen to hold complex beliefs, they lacked the know-how to enact those complex beliefs. In other words, they were not able to apply their complex epistemological beliefs to their classroom teaching.
 - In the case of Deniz, although almost all of her general epistemological beliefs were coded as complex, she was not able to enact them all in a complex manner, suggesting she might not have registered complex examples of enactment in classroom settings in episodic memory related to language learning and teaching in the past (Pathway 9a, 9b).
3. The data also evidenced that none of the four informants enacted initial implicit “naïve” beliefs in a complex manner in the classroom, suggesting that, if informants’ initial beliefs are naïve, a constructivist approach will not be enacted in the workplace at the outset.
4. Themes emerging from the analytical, hermeneutic approach showed that informants’ underlying rationale for enacting complex beliefs might differ.

- Deniz was able to transfer her experiences from other subjects to her teaching.
 - Elif, in contrast, was more intuitive as she was not always able to explain the rationale for such beliefs.
5. Informants' early experiences influenced the way in which they taught in the classroom at the outset for certain teaching behaviors. Alice and Beste did not perceive going into detail as important and simplified knowledge for students while teaching. Deniz considered teachers responsible for students' success in learning and took it as her responsibility to clarify and justify tasks to students. Elif liked lessons which were entertaining, giving more importance to enjoyment than cognitive engagement - she perceived knowledge as simple.

Sub-questions Three and Four

How do their personal belief-related perceptions change over time in the new context, if at all? How do these perceived changes in beliefs, as a result of transitional learning experiences, affect participant teachers' classroom practice in the new context?

1. For those with complex beliefs, assimilation of the practical skills necessary to enact those complex beliefs required a shorter time span than with naive beliefs.
 - For example, it was clear from Deniz's background and experience that she already understood how knowledge was best acquired in the context, therefore adapting her teaching did not require a leap of understanding, particularly as the certificate course supported her in acquiring the needed techniques.
 - Deniz professed and enacted her complex beliefs to the end of the case-study, in all subsets bar two; thus, her beliefs appeared tenacious, and endured.

- In two pathways her complex beliefs were not enacted (Pathways 1 and 5b), Deniz was capable of enacting in a complex manner, but external factors intervened.
2. The data (Figure 18) show, that, after interaction on the certificate course and support of fellow teachers, for almost all pathways with the exception of 3b, 4 and 5a discussed below, the four informants professed complex beliefs.
- The formal certificate course helped with enactment of constructivist teaching practice for those with complex beliefs and naïve initial beliefs.
 - The amount of support required varied depending on whether the initial belief was complex or naïve.
 - Assimilation for those with initial complex beliefs was quicker. Accommodation for those with initial naïve beliefs was slower.
3. Informants responded to negative student pressure differently depending on whether their initial belief was naïve or complex, and whether the beliefs were grouped under the first three of Schommer's five factors.
- Where beliefs were initially naïve, informants reverted under student pressure to enacting their initial naïve belief, despite professing and enacting the complex belief (Pathway 1); the naïve beliefs were grouped under Schommer's first three factors.
 - Where beliefs were initially complex, informants were seen to resist student pressure to change their teaching style. Again, the three factors related to constructivist understandings of knowledge creation seem to be more resistant to change (Table 6).
 - It seems that beliefs under the first three factors appear to be more deeply held core epistemological beliefs and do not change easily.

- In the case of initial naïve beliefs which are deeply held core beliefs sustained reinforcement and evidence of effectiveness of constructivist practice may be needed before informants give up on existing practices and fully accommodate to constructivist practice.
4. When the initial belief is naïve and more deeply rooted, attempting to accommodate complex beliefs appears more difficult. Elif seemed to profess and accommodate a complex belief (Pathway 7) but it turned out to have been only a form of assimilation. As time progresses, it became evident that she had not accepted the complex belief but had tried to fit it into an already existing naïve belief.
 5. When informants' beliefs were related to the last two of Schommer's factors, informants coped better with resistance from learners. Informants changed their initial naïve beliefs (Pathway 2), professed and enacted complex beliefs, and continued to enact them despite pressure from students. This suggests beliefs related to the speed and control of learning are less deeply rooted, and more responsive to accommodating change.
 6. For those starting out with complex beliefs, the content of the certificate course, guidance received from tutors about how to implement these beliefs in classrooms, as well as interaction with seasoned colleagues in their workplace, provided exemplars and clarity for the teachers to enact their complex beliefs (Pathway 9a, 9b), or in the case of Pathway 9c widen their repertoire of constructivist teaching techniques.
 7. Professional learning can influence the formation of new beliefs. In the case of Pathway Four, both Alice and Beste adopted new ways of doing. The former

professed and developed complex beliefs related to the importance of reflection, and the latter developed autonomous skills in lesson planning.

8. Contextual factors can clash with teacher beliefs and force enactment different to their desired way of teaching (Pathways 5a, 5b). The participants perceived school was supporting student beliefs about exam cramming, with the view that this would enhance successful outcomes. This was seen to provoke a loss of motivation on the part of informants and stop their enactment of complex beliefs. Participants' interpretation of the school's message clashed with the certificate course's focus on constructivist practice.
9. Identifying the true core beliefs of teachers may take some time. Two informants displayed masked beliefs which they themselves were not aware of. They presented, enacted, and professed complex implicit beliefs, but observation and analysis revealed that these beliefs were not their true beliefs (Pathway 8), which were eventually exposed.
6. Unusually for Deniz, she expressed implicit naïve beliefs related to authority with regards to language learning and teaching, which might be explained by her early encounters with the teaching style of her French teacher, or by overgeneralizing the provider role of her high school IB teachers. Deniz gradually shifted control to learners but reverted when faced with a negative learner response. Even in a largely complex epistemological stance, specific instances of prior experience may produce naïve beliefs and practice (Pathway One).

Sub-question Five

What distinctions arise, if any, in responses of teachers from different cultural backgrounds and prior professional learning experiences?

1. Nationality was not a distinguishing factor in informants' epistemological beliefs. Beste and Alice were from different ethnic origins and national education systems but were indistinguishable in terms of general beliefs and processes they went through in the study. Their personal epistemological beliefs, as well as their transition to the new workplace, appeared similar.
2. However, early experiences from education and life in general, appear to be key factors in shaping informants' personal epistemological beliefs and how those beliefs affect their enactment in the new workplace.
 - Deniz's International Baccalaureate educational background appeared to have inculcated in her the principles of constructivist teaching, which she was able to transfer with relative ease to her classroom practice.
 - Elif had prior work experience in a different school context but remained naïve in her personal epistemological beliefs. Despite the content of the formal course and the interaction with the workplace, prior experiences as a learner seemed to prevent her from accommodating change.
 - Both Alice and Beste spend time abroad as learners; Alice in Spain during high school, Beste in Europe on an Erasmus program during university. Both believed in language exposure and integration of skills.

Main Research Question

The study started out with the following general research question. How does transitional learning on a formal in-service training course affect a sample of newly recruited international and national teachers' personal epistemology about learning in general, and language learning in particular? The findings detailed above point to the complexity of researching personal epistemological beliefs and their impact on workplace learning in an in-service program as follows:

1. Newly recruited teachers in this context arrived with a mixture of naïve and complex personal epistemological beliefs about knowledge and learning, which varied both within and between individuals and which reflected early learning and life experiences, encapsulated in episodic memory.
2. A substantial proportion of the personal epistemological beliefs amongst informants at the outset of the case-study did not reflect the desired constructivist teaching practice which was the focus of the in-service course.
3. Some informants showed themselves more complex on average in their epistemological beliefs than others, which seemed to reflect their backgrounds and previous learning.
4. Complex beliefs were an advantage when transitioning the certificate course in terms of outcomes but did not necessarily imply that informants could enact their complex beliefs in the classroom on entry to the workplace.
5. Where practice did not match complex beliefs, assimilation of changes in practice to reflect the complex beliefs took place more quickly relative to those starting with naïve beliefs.
6. Naïve epistemic beliefs accommodated more slowly to the requirements of the course and took more time and comparably more intensive work with the teacher educators on the course.
7. The in-service course impacted the professed beliefs of the informants with initial naïve beliefs positively. They adopted, professed, and enacted targeted teaching approaches.
8. An institutional culture amongst teaching staff can contribute positively to belief change and practice, in particular if they have experienced the same process.

9. An in-service program can develop new beliefs enhancing professional skills and autonomous practice, for example, in course planning and reflection.
10. Changes in classroom practice associated with positive change in beliefs did not always endure to the end of the study for different reasons:
 - a. Students' own beliefs as to successful language learning may clash with the approach and methods adopted in an in-service program.
 - b. Institutional perspectives and priorities may also clash with the constructivist expectations on the in-service induction program; contextual requirements such as imposed exam cramming may conflict with epistemological beliefs, causing motivational loss and conformity of practice.
 - c. Student behavior may reinforce and lead to a hardening of naïve epistemological beliefs through negative reinforcement, making change ever more difficult.
 - d. Some beliefs may be masked from the informant at the outset and these subconscious understandings may only reveal themselves through interaction and engagement with the person concerned.
 - e. An informant may have deeply rooted naïve beliefs about good teaching to which they revert once the pressure from the course has ended, despite having professed and enacted the complex equivalents.
11. Psychological factors contribute to change in beliefs – positive responses from students, institutions, teacher educators, and evidence that the new approaches are effective, all contribute to successful outcomes and practice which endures.

Implications for Practice

The assumption that teachers immediately contribute to workplace expectations and practice is not substantiated in the data from this study. The case-

study suggests that personal epistemological beliefs are important shapers of classroom practice and that, for new entrants to the workplace, they should not be ignored. In this context prior beliefs clearly impacted the type of teaching that took place. Even if teachers come with beliefs which are considered complex, enactment may not reflect beliefs at the outset. If a constructivist teaching model is desired in a particular context, based on the data analyzed here, an induction program would help assimilate or accommodate new beliefs to the context, provided that the teacher education model incorporated guidance and mentoring focused around classroom practice.

A first step in any induction program would be to get to know a new entrant's epistemological belief profile, its characteristics, and origins, irrespective of whether the person is new to the profession or with some experience. For an institution which wished to ensure best practice on entry, epistemological belief congruence with an institution's teaching model might even be sampled as part of the hiring process, amongst other sought-after characteristics. Either way, the tools to achieve this might be qualitative in nature based on interview and dialogue, supplemented with a survey, as done in this study, to provide triangulation of data as there seemed to be a positive relationship between the data from both sources at the outset.

For in-service programs which serve as an induction for new staff, the findings suggest that given the differentiated profiles of those newly recruited, course design would need to reflect a flexible model and be tailored to the group profile, using a differentiated approach to mirror profiles. An important part of the design would be knowledge of personal epistemological beliefs, from the start, prior to classroom observation, which then would need to be compared with teachers' classroom behavior. As the data attest, epistemic beliefs may require a longer time

for change, depending on how 'naïve' the profile is, in this context at least, and a one year long formal course may not suffice for sustained change. Continuous professional support may help ensure that beliefs and associated practice endure.

Of course, it is not only beliefs which shape practice as the study has intimated. Common understandings of the desired educational culture and philosophy need to be developed based on communication between teacher educators and school managers to avoid potential conflicts in the interpretation of that culture and philosophy. A conflict that arose in the study and which impacted informant beliefs and practice revolved around the importance attached by administrators to learner beliefs about language learning and the resistance learners showed to the desired constructivist approach. If a certain approach to language learning is envisaged, then the implications for that approach need to be clear at an institutional level so that actions are mutually supported.

The case-study suggests that a formal induction course, even for recruits with previous experience, may support integration to the institutional teaching culture as an immediate good fit cannot be assumed. Here, the institution's educational culture differed from the language learning and teaching practices generally observed in the Turkish school system. Therefore, it may be more important than ever to ensure prior induction into the kind of methodology promoted, not only from a teacher perspective, but also to equip teachers with the ability to respond professionally to the students' learning backgrounds and perceptions of how languages should be learnt.

The case-study further suggests that in-service learning may be a pre-requisite for new teachers, despite previous training and work experience. The methodology employed might be differentiated around examples of videoed lessons with

discussion connected to early experiences, followed over longer periods of time with mentoring and sampling of changes in beliefs and practice. This would entail bringing together the wider teaching community to mull over current practice, challenges, and institutional policies. A measure of epistemological beliefs, for example the survey mentioned above, may need to be developed to reflect subject specific beliefs. Here the study focused on a language learning context but sampling epistemological beliefs about other subjects such as science, mathematics, or history may be required to connect beliefs about knowledge creation to the practicalities of realizing these beliefs in the classroom. As a tool for wider use, such a survey would need to be validated using appropriate statistical techniques.

As mentioned above, if there are disparities between institutional expectations and those of teacher educators, these might need to be made bare prior to embarking on an induction program. Educators' beliefs and operations in the institution would need to be clarified in policies; for example, the role of teaching for exams within a teaching philosophy which is designed to promote communication and acquisition rich learning activities, rather than exam cramming techniques. Disparities may also exist between student beliefs and the epistemological beliefs of the teachers, and the educational principles adopted on the teacher education program. These may be reinforced by contextual expectations in which measures of customer satisfaction may be in danger of replacing techniques which the profession considers necessary to foster successful language learning. Thus, findings from the study put an emphasis on the need for clarifying understandings in an in-service context such as the one studied here where informant, teacher educator, administrator, student and other stakeholders' interests all compete within a closed environment in which perspectives and beliefs provide the potential for clashes. This may be even more

pressing in initial in-service professional learning as the literature points to the challenges encountered by teachers new to school contexts.

Implications for the Literature

The effect of early learning and school experiences on beliefs (Assen et al., 2016; Eraut, 1985; Goodman, 1988;) and the shape of classroom practice is borne out in the permutations illustrated in this study (Figure 21). Even with substantial in-service training, naïve epistemological beliefs respond slowly to change, and the closer a belief is to core beliefs, the more difficult it is to change (Nespor, 1987; Pajares, 1992). Thus, beliefs cannot be ignored in the desired assimilation or accommodation of new practices into a teacher's core belief system (Harrison & Lakin, 2018; Tanse & Wang, 2010). Teachers new to a context may arrive with core beliefs which help shape practice, but other beliefs might run counter to desired practice, despite prolonged earlier training or work experience.

Findings from the data in this study support the description of apprenticeship of teaching by Lortie (2002), namely that teachers tend to imitate the teachers they had in their school years. Even when they seem to disagree with the type of exposure they had as learners, a propensity exists to imitate former teachers as a way out in certain teaching situations. This emulation is difficult to change during their pre-service teacher education, or even when fully in the profession, if no structured support is given (Borg, 2004; Farrell, 2003; Tanase & Wang, 2010). It is clear that the tendency continues in the context, studied here, but in-service support in a formal certificate course may change such beliefs and practice, subject to certain caveats.

The study provides evidence that in-service teacher educators make a difference. For such educators working closely with the classroom environment, knowing the belief profile of teachers offers the potential to accelerate

accommodation to desired practices in the case of naïve beliefs, or assimilation in the case of complex beliefs, in order to achieve practice congruent with desired beliefs (Tanase & Wang, 2010). However, despite changes in teacher's beliefs towards a more complex stance, inconsistency between beliefs and classroom practice may still be observed (Nghia, 2017); "changes in beliefs do not automatically lead to changes in behavior" (Assen et al., 2016, p. 20).

Familiarity with the epistemological development of novice teachers, as well as the contextual landscape in which they work, can assist in-service teacher educators in giving the right guidance for effective classroom practice. Positive student outcomes may then contribute to the novices' improved conceptual understandings of successful teaching and learning (Guskey, 2002). Change, as witnessed in this study, is a slow process which benefits from intensive support in a more formal learning setting, such as the intensive professional development course. Further studies on specific interventions and activities by teacher educators, which enhanced understandings reflected in personal epistemologies, would provide additional knowledge of how best to approach challenges inherent in revisiting and changing conceptual understandings developed in early life experiences.

This case-study adopted and adapted Schommer's (1990) Epistemological Beliefs Questionnaire to research personal epistemology about knowledge creation in general, foreign language learning and teaching, and professional learning in particular. Here Schommer's theoretical framework was applied to teaching and teacher beliefs, rather than to students of science and social studies. This study is a significant addition to the pool of epistemological beliefs literature in the area of education. My results show that, in seeking constructivist teaching practices, changes in teachers' beliefs follow diverse paths. This outcome mirrors Tanase and Wang

(2010) who show that a teacher's profile, namely whether they are dualistic or multiplistic knowers of knowledge, affects how susceptible they are to changing epistemological beliefs. In this study, similar to multiplistic knowers, teachers with more complex beliefs assimilated new practices more easily, whereas teachers with more naïve beliefs required a longer period of time to accommodate new complex beliefs into their belief systems. Furthermore, my study adds to Elby & Hammer's (2010) findings. In addition to beliefs varying from one subject field to another, this study showed that teachers' personal epistemological beliefs can vary within the same subject field depending on the focus being language systems or skills.

Reaching the Goldilocks Zone, the area in which implicit, professed, and enacted beliefs overlap (Chapter 4, Figure 13), was not a foregone conclusion of the study. Naïve practice persisted in response to individual belief characteristics and contextual factors (Elby & Hammer, 2010; Ham & Dekkers, 2019). The naïve beliefs in Pathway One were related to the stability, source and structure of knowledge in Schommer's framework (Table 6). Cheng et al. (2009) also noted that reinforcement over longer periods might be required for changes to such beliefs to be fully accommodated into an informant's schema, as informants reverted when faced with resistance emanating from the context. Here my research outcomes provide further specificity to Cheng et al.'s conclusions by linking reversion to certain belief types. To overcome resistance from contextual factors, pressure from continuous professional support (Guskey, 2002) needs to be maintained, coupled with clearly defined expectations set by the institution.

For Pathway Two, by way of contrast, student pressure was resisted. Under this Pathway changes to initial beliefs were mostly related to the speed and control of learning. Beliefs under factors 4 and 5 in Schommer's framework (Table 6) appear,

on this evidence, to be less susceptible to reversion under pressure, a finding consistent with Nespor (1987). When informants were given the right guidance in changing their classroom practice, and saw the effectiveness of their new practice, belief change was more likely to take place in a relatively shorter period of time. The fact that belief change was successful, real, and sustained is reflected in informants' resistance to negative learner reactions.

Initial complex beliefs under Pathway Nine were more deeply rooted and did not change when challenged by contextual factors, suggesting again that core beliefs related to the stability, source and structure of knowledge are more tenacious. This parallels findings in studies on teacher narratives in teaching and teacher learning (Clandinin & Connelly, 1987; Nghia, 2017). Thus, it appears that beliefs under Schommer's first three factors, whether naïve or complex, appear more tenacious: reverting when naïve, resisting when complex. My study thus underlines the importance of teacher educators differentiating belief types as a means of supporting positive change and focusing effort where needed. So not only sustainable change in teaching practice might require longer professional development courses (Guskey, 2002; Penner-Williams et al., 2019), but, as elucidated in my data, sustainability may also be a function of belief type, too, especially for naïve beliefs related to the source, structure, and stability of knowledge. Guskey (2002) emphasizes that encouraging teachers to practice complex beliefs outside of their comfort zone, if the outcome is successful, may encourage them to adopt a complex behavior. I suggest, based on findings, that knowledge of belief types prior to encouragement might aid the educator to focus more fruitfully on areas which will represent a larger challenge in terms of desired change.

Pathway Eight illustrates subconsciously held naïve beliefs, despite professing complex beliefs. Harrison and Lakin (2018) conclude that teachers may continue holding robust beliefs when entering the profession, even after pre-service education. I realized that, in the case of two informants, when certain initial implicit complex beliefs were challenged by student resistance, these complex beliefs were revealed to be professed rather than implicit. These masked beliefs, representing their true core beliefs, were naïve. This emphasizes the importance of validating implicit beliefs by cross referencing with teachers' classroom enactment and their own rationalization of their classroom behavior. Teachers may not be consciously aware of their beliefs (Pajares, 1992; Rokeach, 1968) and may profess and enact complex beliefs which are ostensibly at odds with their true naïve epistemological beliefs.

Pathway Five supports findings regarding how context, for example an exam-driven curriculum implemented in the teaching context (Nghia, 2019) or the volume of curriculum (Ham & Dekkers, 2019), hinders teachers translating their implicit complex beliefs into classroom performance. Two informants' classroom enactment projected naïve epistemological beliefs through accepting to implement exam practice techniques, although this ran contrary to their implicit complex beliefs and the constructivist philosophy of the formal certificate course. Their response was enforced by contextual expectations, which echoes Eraut (2004) and Farrell (2003) about uncoded knowledge acquired from the workplace context. Exam practice was neither apparent in informants' core beliefs, nor promoted on the course. So, although they doubted its effectiveness, both carried it out, reflecting dependence on institutional and student authority, a Schommer subset which appears relatively frequently in the study. Contextual factors may counter positive changes in

epistemological beliefs, and hinder their espousing or sustainability (Cheng et al., 2009).

This study shows context as a dominant force impacting the extent to which teachers can translate newly acquired beliefs into constructivist teaching behaviors. Context played a large part in this reversion and, had contextual factors been different, complex beliefs might have been accommodated. This presages a need for school administrators and teacher educators to collaborate closely if a constructivist approach is desired. Student reactions determined informants' teaching style and were responsible for professional learning gains to revert to ground zero (P1, P3, P8), and, in certain cases, reinforced and strengthened an original belief, as also noted in Kember (1997), and Kennedy (1997). The work context should provide a support structure to maintain and improve on the job learning and instruction (Shirrell et al., 2019). If educators and leaders are at loggerheads over client wants and needs, this may bode ill for effective learning. As my study points out, a lack of support from administrators while dealing with students' beliefs about learning and teaching (Nghia, 2017) may be detrimental to achieving more effective teaching models, despite the availability of professional learning support.

Pathway Four illustrates the adoption of beliefs about professional learning imparted as a result of the course. Alice began reflecting on her classroom practice and Beste began analyzing in detail her planning. Both relate to the source and structure of knowledge under the factor Simple Knowledge (SK) and represent complex behaviors brought about by interaction with course content and practices. Shavelson and Stern (1981) and Clark and Peterson (1986) underline the motivational impetus of successful adoption of new behavior. It also supports Guskey's (2002) arguments regarding professional development and change in

teacher beliefs. It cannot be determined whether these professional learning behaviors persisted into Phase Three of the study and beyond as sustained behavioral change may require a longer period than covered by the study (Penner-Williams et al., 2019). The impact and longevity of professional development activities requires research timescales which exceed that of the current study, a challenge for researchers in this field. However, to reduce the risk of reversion, teachers who completed a formal in-service program could be coopted as mentors to support newly recruited novice teachers, which would encourage continued enactment of adopted practices.

All informants evidenced a strong dependence on authority. Omniscient authority (OA), a factor added later by Schommer (1994b, 2000) to her framework, can be broadly interpreted in this study as coming from the context: an influential mentor; the institution; and/or student views. Dependence on authority (DA) may not necessarily be interpreted as negative when it comes to professional learning where a training course pressures informants to profess beliefs which are then enacted and accommodated. However, it may be interpreted as negative when informants respond naively to authority emanating from the context, such as aligning with students' naïve beliefs about teaching and learning, or preparing students for exam success, or feeling the institutional pressure to get positive reviews from students.

In the different Pathways differentiated in the study and referred to above, the teacher educator is confronted with the dilemma of, firstly, how to detect true beliefs and, secondly, how to avoid the entrenchment of a naïve belief in response to contextual factors which militate against a constructivist vision of education. A further challenge is whether change in beliefs and practice can ever be assumed as acquired. As stated by Pajares (1992) changing beliefs during a pre-service teacher

education program is difficult. My study has shown that changing deeply rooted beliefs during a formal induction teacher training program can be equally difficult. Teachers' previous exposure to instruction forms deeply rooted beliefs evident in their enactment (Green, 1971; Kember, 1997). In-service teacher educators need to be aware of teachers' deeply rooted naïve beliefs and find ways to reveal and challenge them throughout a formal training program, but remain conscious of the fact that beliefs, as outlined in Chapters 1 and 2, are difficult to pin down and may always require interpretative approaches to fathom their significance.

Limitations

This is a single case, in-depth study of four informants in one context, thus generalizability beyond the context may be considered a limitation (Cohen et al., 2007), even though the embedded subunits allow intra-case comparison. Nonetheless, its hermeneutic approach provides deeper insight into the origin of teachers' personal epistemological beliefs, and the processes, mechanisms and forces which link beliefs to changes in classroom practice over time. The research methodology is firmly within a constructivist-interpretative paradigm (Mackenzie & Knipe, 2006), and so what may be lost to generalizability allows a revealing and insightful account of a dynamic change processes, which can spur further longitudinal investigation of teacher epistemologies. For example, Penner-Williams et al. (2019) opine that the three semesters targeted here might still not be sufficient to accurately judge change in teachers' epistemological beliefs. Beliefs have to be interpreted and so a questionnaire of its own is not sufficient to explore deeply rooted implicit beliefs.

Teacher beliefs do not lend themselves to quantification. In this study Schommer's framework was the lens through which I selected for focus were

specific areas representative of constructivist teaching approaches explored on the course. I focused on recurring themes in informants' data, and I followed them up over the three phases because I wanted to observe and link changes in beliefs and teaching approaches if and when they happened. The data may have included other beliefs which did not receive attention and remained outside my focus because beliefs were too numerous to include in their entirety and I wanted to focus in on recurring episodes using the chosen framework. This implies that conclusions are not based on random selection of instances but are based on how significant they were for studying the underlying processes at work in belief change over time.

In this case classroom observation was studied using methods which included lesson plans, field notes in the form of running commentaries, enhanced with post-observation documents and discussion. Inevitably, such collection might have benefited from the addition of a technique such as Video Enhanced Observation (Sert, 2016) to facilitate further checking of real time perceptions of the relationship between classroom enactment and implicit and professed beliefs. The case-study necessarily represents a single individual's effort as part of a PhD thesis program. However, given the importance of beliefs as an area to be studied, and the potentially profound effect on the quality of teaching that beliefs appear to exert, such future studies would benefit from a more technological footprint. I feel that a hermeneutic approach would still be essential to tease out personal epistemological beliefs because of the nature of beliefs as outlined in Chapter 2, but technological support in the form of video recordings would allow more reliable interpretation and validation.

The fact that I belong to the team of teacher educators on the formal teacher education program and a tutor to several participants might be considered a threat to reliability and, thus, a weakness of the design. The interpretivist paradigm requires

an open and ethical stance and the hermeneutic framework adopted acknowledges the researcher's role as a co-researcher. It may also be maintained that informants may not always share their truth regarding knowledge and knowing, believing that this may affect their tutor's perception when assessing course work. The development of a trusting relationship reduces this threat to validity. This might also be a criticism levelled against survey style research of a positivistic nature as the truth may not necessarily be more in evidence simply because of a questionnaire format.

Finally, adaptation of Schommer's theoretical framework might be seen as conceptually unfitting to researching teacher beliefs in a dynamic frame. The framework was extended as part of this study to include beliefs about learning and teaching in line with comments in the literature, and also included professional learning to reflect the course, which underpins Pathway Four. Applying Schommer's framework to English language teaching and learning was a new initiative. Adapting the subsets to the context was challenging, requiring interpretation of Schommer's definitions with respect to this area of knowledge.

Inclusion of subsets may need to be further considered based on the target subject area. Some subsets did not appear in the data, for example, avoid ambiguity under the factor "Certain Knowledge". Some overlapped, for example, "Knowledge is Certain" under the factor "Certain Knowledge" with the subset "Dependence on Authority" under "Omniscient Authority". The subsets under the last two factors (Table 6) were difficult to differentiate. For example, difficulties were encountered in relating the factor "Quick Learning" and its three subsets to language teaching. Similarly, the factor about control of learning, viz. "Innate Ability", occurred frequently in this study and might require more differentiation to reveal associated

epistemological insights and understandings related to the subject area. So, in any new initiative using Schommer's theoretical framework, subsets may need to be combined or reduced based on the field being researched, or even new definitions for the subsets might be needed under those factors.

Conclusion

The research set out in this study is a rare attempt to plot longitudinally and in-depth, both systematic and dynamic change to the personal epistemological beliefs of in-service teachers on in-service induction program and relate these beliefs to changes in classroom practice. The four English language teacher informants, some with different nationalities but similar socio-economic backgrounds, were newly recruited. Beliefs were shown to follow different paths when categorized as naïve or complex using Schommer's 1990 framework, and the formal in-service certificate program was seen to effect positive change towards constructivist teaching practice. Nationality or background had no bearing on the study outcomes. Results suggest that true complex beliefs only lacked classroom know-how on the part of informants and were quickly assimilated; naïve beliefs required more time for accommodation to new ways of doing. However, detecting the true nature of beliefs was not without difficulty, and changing deeply seated core beliefs presented a challenge, not least because in some cases beliefs were not consciously held.

The research raises the question of congruence between beliefs held by teacher educators as regards classroom methods and those which, in this case-study, administrators and students might hold. From one vantage point clarification of institutional beliefs in relation to the goals of in-service teacher education would contribute to the achievement of more successful learning outcomes for students. Supporting teachers' transition to the workplace or profession through a formal

training course generates change in teachers' epistemological beliefs resulting in deliberate enactment (Elby & Hammer, 2010). However, contextual factors are an important determiner in whether these beliefs will continue to be enacted.

This case-study confirms that in-service formal learning contributed to positive change in the epistemological beliefs and their enactment in the classroom. Changes were not always maintained, however, due to personal characteristics and contextual factors. The Seven-Zones Model (Figure 16), incorporating implicit, professed, and enacted beliefs, elucidates the forces at play and challenges inherent in changing teacher beliefs. My hope is that this study will spur further empirical work, quantitative and qualitative, to extend our knowledge in this critical domain.

I believe this study advances our understanding of dynamic change in personal epistemological beliefs in the workplace and processes underpinning such change. It illustrates how individual belief characteristics affect the rate of adoption of targeted methodologies, how core beliefs can be more tenacious to change, and how contextual factors may hinder positive change in methods, or even reinforce previously held naive beliefs, when seen through Schommer's framework. The study posits clear results, to be confirmed or rejected through further empirical work, in order to build up a body of evidence on the utility of exploring personal epistemological beliefs during in-service teacher education. The study also raises a question about in-service teacher education in which a constructivist classroom methodology may run counter to contextual realities.

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APPENDIX A

Epistemological Belief Models

Models	The Perry Scheme	Women's Ways of Knowing	Epistemological Reflection Model	The Reflective Judgement Model	The Skills of Argument
Researchers	Perry (1970)	Belenky, Clinchy, Goldberger & Tarule (1986)	Magolda (2001)	King & Kitchener (2002)	Kuhn & Weinstock (2002)
Respondents	White, male university students	Adult females Silence: Not having a voice	Male and female adults	Male and female, late adolescence to adulthood	Mix of respondents, teenagers to elderly
	Dualistic	Received knowing	Absolute	Pre-reflective	Realism
	Truth can be known. Right and wrong views Certainty of knowledge	Knowledge comes from an external source and not from within	Knowledge is certain	Knowledge can be known with certainty. Cognition involves rote learning	Assertions are copies of reality. Reality is knowable
Stages in epistemological development	Multiplism	Procedural knowing	Transitional	Quasi-reflective	Absolutism
	Diverse viewpoints exist Uncertainty is possible	Knowledge is seen to be gained by either separate or concerned means	Degrees of uncertainty depend on the discipline	Knowledge has a certain degree of uncertainty	Assertions can be either right or wrong. Reality is knowable
	Relativism		Independent knowing		Multiplism
	Different views exist and are equally valid - Truth does not exist		Knowledge is uncertain	Meta-cognition is required to sort through knowledge	Assertions are opinions. Knowledge is created and uncertain. Reality is not directly knowable
(continued)					

The Perry Scheme	Women's Ways of Knowing	Epistemological Reflection Model	The Reflective Judgement Model	The Skills of Argument
Commitment to Relativism There is a need to analyze viewpoints and choose one that is most valid	Constructed knowing Knowledge making involves the personal construction of meaning	Context knowing Knowledge judged on evidence in a given context	Reflective Knowledge claims are uncertain Solutions depend on best fit for the context and referring to beliefs. Criteria for knowing	Evaluativist Assertions are judgments that can be compared and evaluated. Reality is not directly knowable.

Note. Adapted from “The development of epistemological theories: Beliefs about knowledge and knowing and their relation to learning,” B.K.

Hofer & P.R. Pintrich, 1997, *Review of educational research*, 67(1), 88-140.

APPENDIX B

Defining Subsets

SIMPLE KNOWLEDGE One fits all / no depth of understanding	
Seek single answer	KK - Focus on one aspect of information - One correct answer to questions, no room for different perspectives/ no context consideration - Memorization and rote learning leads to success LLT - If laid out explicitly with rules and formulas, rather than meaning and use language learning is easy - Knowledge is brought down to a simple level, low level of challenge PL - Believes there is one best way to teaching a subject without considering student needs/learning context - Not open to new teaching ideas - Sticks to lesson plan - No effort to understand underlying reasons for student behavior - Expects course tutor to give only one, most appropriate teaching suggestion
Avoid integration	KK - No room for personalization - Knowledge remains simple, surface level - No integration of knowledge / knowledge is compartmentalized / discrete facts - Not building on existing knowledge / experience LLT - Decontextualized, no integration – teach one thing at a time, controlled practice - No consideration of timetable fit, not much room for recycling or planning consecutive lessons to gradually add to students' knowledge base - Use of L1 for giving definitions or explanation of language rather than examples in L2 PL - Is an individual work through reading books, trial and error - Does not collaborate with colleagues to make use of their experience - No need to link theory to practice
CERTAIN KNOWLEDGE Absolute truth	
Avoid ambiguity	KK - Knowledge should be laid out explicitly so as to avoid any ambiguity LLT - Knowledge is presented explicitly giving clear explanations rather than deducing meaning, input = intake - No difference in content of T presentation and CB – no CB mat. adaptation - Teach one thing at a time, PPP preferred - Gradual progression in complexity of knowledge

		- T language should be simple to avoid any misunderstandings - Challenge level of lesson below the learners to avoid any misunderstanding
	PL	
		- Knowledge about language is sufficient - Doesn't relate to own experience as a learner when planning lessons - Feeling more confident with language systems lessons than skills lessons?
Knowledge is certain	KK	
		- One single truth, applies to everyone, this truth should be presented, everybody should accept it - Knowledge is certain / absolute conclusions drawn / generalizations - Knowledge is not tentative and does not change over time
	LLT	
		- One single truth re FMU, which doesn't change: focusing more on language rules - One single correct way of doing things, other possibilities not accepted, no flexibility - Ss start using the language only after some knowledge is acquired - A direct equivalent in L1 for every word/structure - Materials contain only language learners are familiar with - Only one correct answer to questions
	PL	
		- Only one correct way to teach, not open to new Teaching ideas - One interpretation of classroom practice - Reflection on teaching is rather descriptive, no consideration of the underlying reasons for what happened in the class - No consideration of SS' needs or institutional expectations
OMNISCIENT AUTHORITY		
Do not criticize authority	KK	
		- Info presented by authority shouldn't be questioned but obeyed
	LLT	
		- No need for CB adaptation – only truth, best way - No need to explain students the purpose of activities - smooth transitions - No room for critical thinking
	PL	
		- LM or TT should tell explicitly how Ts should teach - FB should not be questioned but accommodated into their teaching
Depend on authority	KK	
		- Knowledge is passed down by authority rather than through experience and/or inquiry learning - No individual effort to learn new info, everything is decided & presented by authority
	LLT	
		- Authority determines what and how knowledge is presented - Minimum elicitation and pair work activity where students can learn from each other; lessons are rather teacher centered - No discovery approach – info is presented straight by authority - Authority provides the correct answer and explains how to get to the correct answer to avoid any assumptions - Authority motivates & stimulates learning, nominates students

		- Authority provides information for all complicated concepts during learning process
	PL	
		- It is important to adhere to the expectations of the institution without considering the needs of the students - Tutors teach instructors how to teach and use the institutional teaching materials
INNATE ABILITY		
Cannot learn how to learn	KK	
		- Not possible to learn how to learn to improve as a learner - Self-study materials aren't of any use - Strategy training is not of any help
	LLT	
		- Strategy training won't improve learners' knowledge, no clear guidance - No outside class study strand, self-study books are not of any use.
	PL	
		- It depends on the effort of Tutor how much a Teacher can develop. - All Ts develop at the same pace and rate based on the effort of the tutor
Success is unrelated to hard work	KK	
		- Genius is more related to intelligence than hard work - Smart people are born as smart = always successful & learn without any struggle - Wisdom = having the answer to all questions, not about learning how to find the answers to questions
	LLT	
		- Learners need to have innate ability to learn a Foreign Language, otherwise no matter how hard they, won't become a competent user of it - Learners should pick up the Target Language point easily - No tolerance for mistakes because mistakes are a sign of lack of intelligence, - Learning a foreign language should be easy, no need for having a range of practice materials
	PL	
		- Teachers are born with certain abilities, no matter how hard they try, not possible to develop - Having to work hard on the course is frustrating
Ability to learn is innate	KK	
		- Need for special, inborn talents to be an expert in a field / fixed at birth rather than improvable over time and experience, ability to learn is innate, no need to work hard. - Less talented learners can't improve over time
	LLT	
		- Attention is given to high achieving ss - Lessons are geared towards high achievers - Natural exposure is enough for smart students to learn a foreign language - Follows a product-oriented approach in lesson
	PL	
		- Not possible to turn into efficient teacher over time

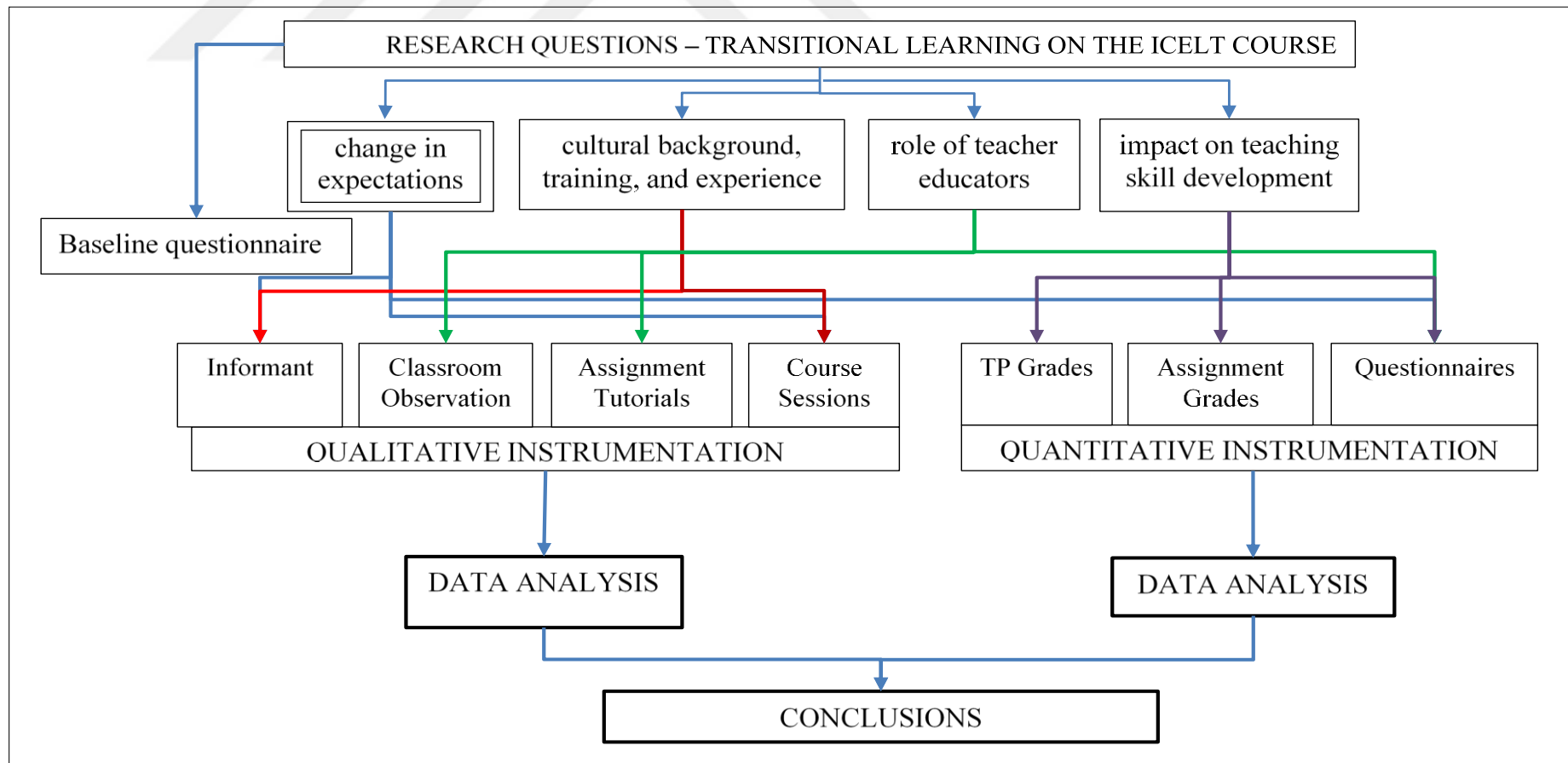
QUICK LEARNING

Learning is quick	KK	
	-	Learning content quickly / learning process is quick
	LLT	
	-	Learning foreign languages is not a long, demanding process
	-	Building knowledge not a slow process
	-	No need to have ss elaborate on their answers, ask for justification of answers
	-	Only intelligent people should spend long hours trying to solve a challenging problem
	-	No difference between learning a FL and math/science
	PL	
	-	A fast process, doesn't require FB on teaching or reflection on action
	-	Teaching practice and reflection on teaching doesn't contribute to professional development
Learn first time	KK	
	-	If not understood the first time, you never will – no need to further try
	-	Revising info won't contribute to learning
	LLT	
	-	No need to change teaching style to help ss who didn't understand the first time
	-	Learning takes place through imitation and drilling
	-	Not much room for multi-exposure and recycling
	PL	
	-	Develops quickly, not much need for practice and feedback
	-	Acquiring knowledge from books rather than interacting with colleagues
	-	It's easy to put theory into practice
Concentrated effort is a waste of time	KK	
	-	Since learning is quick, if too much cognitive effort put in, it's more confusing
	LLT	
	-	Less discovery approach and more didactic teaching
	-	Student errors should be corrected immediately
	PL	
	-	Does not believe in the value of continuous professional learning

Note. KK = knowledge and knowing, LLT = language learning and teaching, PL = professional learning.

APPENDIX C

Research Design for Pilot Study



APPENDIX D

Contrasting Features of Five Qualitative Approaches

Characteristics	Narrative research	Phenomenology	Grounded theory	Ethnography	Case study
Focus	Exploring the life of an individual	Understanding the core of an experience	Developing a theory based on the data from that field	Describing and interpreting a group sharing the same culture	Developing an in-depth description and analysis of a case or multiple cases
Type of problem best suited for design	Needing to tell stories of individual experiences	Needing to describe the core of a lived phenomenon	Grounding a theory in the views of participants	Describing and interpreting the shared patterns of culture of a group	Providing an in depth understanding of a case or cases
Unit of analysis	Studying one or more individuals	Studying several individuals that have shared the experience	Studying a process, action, or interaction involving many individuals	Studying a group that shares the same culture	Studying an event, a program, an activity, more than one individual
Data collection tools	Using primarily interviews and documents	Using primarily interviews with individuals, although documents, observations may also be considered	Using primarily interviews with 20-60 individuals	Using primarily observations and interviews but perhaps collecting other sources during extended time in the field	Using multiple sources, e.g., interviews, observations, documents
Data analysis strategies	Analyzing data for stories, “restorying” stories, developing themes, often using a chronology	Analyzing data for significant statements, meaning units, textural and structural description, description of the core, i.e., “essence”	Analyzing data through open coding, axial coding, selective coding	Analyzing data through description of the culture-sharing group, themes about the group	Analyzing data through description of the case and themes of the case as well as cross-case themes

Note. From “Qualitative inquiry and research design: choosing among five approaches (2nd ed.),” J.W. Creswell, 2007, Thousand Oaks: Sage

APPENDIX E

Evaluation Criteria for Teaching Practice

Estimate where the teacher stands on this scale; that is are they closer to belief criteria to the right or to the left. The proximity to the side dictate how close you think they are to the action under descriptors

FACTORS	DESCRIPTORS	EVALUATION										DESCRIPTORS
SIMPLE KNOWLEDGE	SEEKING SINGLE ANSWER											SEEKING SINGLE ANSWER
	- Teaches grammar more focussed on form	5	4	3	2	1	1	2	3	4	5	- Teaches grammar in context with examples of use
	- Seeks single responses to questions in reading and listening (not going further and beyond)	5	4	3	2	1	1	2	3	4	5	- Seeks multiple responses to questions in reading and listening (exploring beyond)
	- Uses L1 to clarify the right meaning and answer	5	4	3	2	1	1	2	3	4	5	- Uses L2 and elicits possible responses and is accepting of them
	- Encourages speaking in simple sentences to illustrate language	5	4	3	2	1	1	2	3	4	5	- Encourages speaking in context with possibility of complex exchanges accepted
	- Tasks do not require higher level thinking	5	4	3	2	1	1	2	3	4	5	- Tasks require higher level thinking
	AVOID INTEGRATION											AVOID INTEGRATION
	- Accepts answers without need to reference to a broader context	5	4	3	2	1	1	2	3	4	5	- Contextualises answers and seeks alternatives
	- Teaches vocabulary through giving definitions and memory	5	4	3	2	1	1	2	3	4	5	- Teaches vocabulary through meaning and use in context

	●	●	●	●	●	●	●	●	●	●	
- Presents content without reference to personal experiences of students	5	4	3	2	1	1	2	3	4	5	- Presents content with reference to personal experiences of students
	●	●	●	●	●	●	●	●	●	●	
- Conducts learning without reference to students' previous knowledge and learning	5	4	3	2	1	1	2	3	4	5	- Conducts lesson with reference to students' previous knowledge and learning
	●	●	●	●	●	●	●	●	●	●	
- Information presented in independent chunks	5	4	3	2	1	1	2	3	4	5	- Information integrated across activities
	●	●	●	●	●	●	●	●	●	●	

CERTAIN KNOWLEDGE

AVOID AMBIGUITY

- Designs/present language / skills tasks to turn up the right answer without confusion
- Follows a controlled lesson shape while transmitting the piece of knowledge
- Presents answers and explanations as unambiguous with a focus on accuracy
- Reduces negotiation or discussion of answers

5	4	3	2	1	1	2	3	4	5
•	•	•	•	•	•	•	•	•	•
5	4	3	2	1	1	2	3	4	5
•	•	•	•	•	•	•	•	•	•
5	4	3	2	1	1	2	3	4	5
•	•	•	•	•	•	•	•	•	•
5	4	3	2	1	1	2	3	4	5
•	•	•	•	•	•	•	•	•	•

AVOID AMBIGUITY

- Guides students to discover the meaning and use/ how to accomplish a task
- Adopts different lesson shapes such as TTT, TBL while facilitating learning
- Focuses more on meaning and use and considers appropriacy along with accuracy
- Effective use of CCQs while discussing the meaning/answers

KNOWLEDGE IS CERTAIN

- Gives the impression that there is only one right answer
- Considers no alternative responses

5	4	3	2	1	1	2	3	4	5
•	•	•	•	•	•	•	•	•	•
5	4	3	2	1	1	2	3	4	5
•	•	•	•	•	•	•	•	•	•

KNOWLEDGE IS CERTAIN

- Tentatively approves different responses to the same question
- Accepts alternative student responses

	- Limits challenge level to doable tasks	5	4	3	2	1	1	2	3	4	5	- Incorporates tasks that are slightly above students level												
		●	●	●	●	●	●	●	●	●	●													
	- Sees one way of solving problems as true	5	4	3	2	1	1	2	3	4	5	- Encourages students to experiment with the target language												
		●	●	●	●	●	●	●	●	●	●													
OMNISCIENT AUTHORITY	DEPEND ON AUTHORITY											DEPEND ON AUTHORITY												
	- Teaches in a teacher centred manner	5	4	3	2	1	1	2	3	4	5	- Adopts student-centred activities												
		●	●	●	●	●	●	●	●	●	●													
	- Considers students as tabula rasa / empty vessels	5	4	3	2	1	1	2	3	4	5	- Accepts that students may have some previous knowledge about the language												
		●	●	●	●	●	●	●	●	●	●													
	- Deductive approach, directive instructions	5	4	3	2	1	1	2	3	4	5	- Inductive teaching approach, elicits as much as possible from the learners												
		●	●	●	●	●	●	●	●	●	●													
	- The lesson has mostly teacher-student interaction patterns	5	4	3	2	1	1	2	3	4	5	- Incorporates s-s interactions effectively												
		●	●	●	●	●	●	●	●	●	●													
	- Finds it difficult to accept that students have their own opinion about topics that could be incorporated into the lesson	5	4	3	2	1	1	2	3	4	5	- Accepts the fact that students have experience and knowledge about various general topics and is willing to incorporate those as they arise into the lesson												
		●	●	●	●	●	●	●	●	●	●													
	- Avoids taking risk when planning practice activities	5	4	3	2	1	1	2	3	4	5	- Allows students free rein when engaged in freer practice												
		●	●	●	●	●	●	●	●	●	●													
	- Teacher designed activities which are unidirectional	5	4	3	2	1	1	2	3	4	5	- Designs activities where learning can be reciprocal												
		●	●	●	●	●	●	●	●	●	●													
	DON'T CRITICIZE AUTHORITY												DON'T CRITICIZE AUTHORITY											
	- Acts as the final judge of right or wrong answers	5	4	3	2	1	1	2	3	4	5	- Encourages students to justify their answers												
		●	●	●	●	●	●	●	●	●	●	●												

INNATE ABILITY	- Teacher gives feedback on learners' outcomes	5	4	3	2	1	1	2	3	4	5	- Encourages peer checking before whole class discussion of learners' outcomes
		●	●	●	●	●	●	●	●	●	●	
	- Strictly follows the stages in the textbook	5	4	3	2	1	1	2	3	4	5	- Adapts textbook materials according to students' needs
		●	●	●	●	●	●	●	●	●	●	
	- Depends on the textbook for language knowledge and practice	5	4	3	2	1	1	2	3	4	5	- Uses authentic materials/topics to practice the language
		●	●	●	●	●	●	●	●	●	●	
	- Corrects all type of student mistakes immediately	5	4	3	2	1	1	2	3	4	5	- Encourages self- and peer-correction before teacher correction
		●	●	●	●	●	●	●	●	●	●	
	SUCCESS IS UNRELATED TO HARD WORK						SUCCESS IS UNRELATED TO HARD WORK					
	- Level of challenge of materials/lesson is either below or far above the level of learners	5	4	3	2	1	1	2	3	4	5	- Level of challenge of materials/lesson is in line with the level of learners
		●	●	●	●	●	●	●	●	●	●	
	- Is intolerant towards learner mistakes	5	4	3	2	1	1	2	3	4	5	- Displays an understanding and non-threatening attitude towards learner mistakes
		●	●	●	●	●	●	●	●	●	●	
	- While describing class profile signals more negative approach towards low achieving learners	5	4	3	2	1	1	2	3	4	5	- While describing class profile demonstrates a more supportive attitude towards the low achieving learners
		●	●	●	●	●	●	●	●	●	●	
	- Directs attention towards the better students	5	4	3	2	1	1	2	3	4	5	- Encourages participation of all learner profiles
		●	●	●	●	●	●	●	●	●	●	
	ABILITY TO LEARN IS INNATE						ABILITY TO LEARN IS INNATE					
	- Adopts product-oriented learning	5	4	3	2	1	1	2	3	4	5	- Adopts process-oriented approach
		●	●	●	●	●	●	●	●	●	●	
	- Nominates high achieving students most of the time	5	4	3	2	1	1	2	3	4	5	- Nominates different profile students throughout the lesson
		●	●	●	●	●	●	●	●	●	●	

- Gives the impression better learners are more valued, and praises them for their responses	5	4	3	2	1	1	2	3	4	5	- Praises learners for their effort and recognises value added
	●	●	●	●	●	●	●	●	●	●	
- Decides not to provide individual monitoring and support to all students	5	4	3	2	1	1	2	3	4	5	- Effective monitoring and providing individual support during the lesson
	●	●	●	●	●	●	●	●	●	●	
- Plans lessons that cater for only one type learning styles	5	4	3	2	1	1	2	3	4	5	- Uses variety of task types to cater for different learning styles and learning preferences
	●	●	●	●	●	●	●	●	●	●	

CAN'T LEARN HOW TO LEARN

CAN'T LEARN HOW TO LEARN

- Does not focus on learning strategies or how to do things	5	4	3	2	1	1	2	3	4	5	- Focus on learner strategies and meta-cognitive strategies and believes in its value
	●	●	●	●	●	●	●	●	●	●	
- Does not appear to value learner initiatives on how to learn	5	4	3	2	1	1	2	3	4	5	- Values students' learning strategies
	●	●	●	●	●	●	●	●	●	●	
- Does not plan pre-sessional or post-sessional homework; fears that students won't do the tasks	5	4	3	2	1	1	2	3	4	5	- Makes use of outside class strand to give students extra practice and/or prepare the students for the forthcoming lesson
	●	●	●	●	●	●	●	●	●	●	

QUICK LEARNING

LEARNING IS QUICK

LEARNING IS QUICK

- Goes through activities quickly	5	4	3	2	1	1	2	3	4	5	- Paces the lesson according to students' needs
	●	●	●	●	●	●	●	●	●	●	
- Does not encourage learners to elaborate on their answers	5	4	3	2	1	1	2	3	4	5	- Encourages learners to elaborate on their answers, asks follow up questions
	●	●	●	●	●	●	●	●	●	●	
- Elicits individual answers from the students and moves on once the correct answer is given	5	4	3	2	1	1	2	3	4	5	- Encourages students to justify their answers and may use whole group discussion to reach a consensus
	●	●	●	●	●	●	●	●	●	●	

- No clear understanding of timetable fit and lesson is perceived in isolation	5	4	3	2	1	1	2	3	4	5	- Shows understanding of timetable fit and is reflected in lesson planning and delivery
	●	●	●	●	●	●	●	●	●	●	
- Doesn't give the importance to recycling language and language sub-skills	5	4	3	2	1	1	2	3	4	5	- Gives importance to recycling language and language sub-skills
	●	●	●	●	●	●	●	●	●	●	

LEARN FIRST TIME

- Lesson planning and delivery of the lesson reflects the belief that input becomes intake immediately	5	4	3	2	1	1	2	3	4	5	- Lesson planning and delivery of the lesson reflects the belief that learning takes time
	●	●	●	●	●	●	●	●	●	●	
- Does not attempt to understand the cause of learner mistakes	5	4	3	2	1	1	2	3	4	5	- Makes an effort to understand the cause of learner mistakes
	●	●	●	●	●	●	●	●	●	●	
- Corrects all learner mistakes immediately	5	4	3	2	1	1	2	3	4	5	- Is selective in what to correct and when to correct learner mistakes
	●	●	●	●	●	●	●	●	●	●	
- Gears the lesson towards students who learn the first time	5	4	3	2	1	1	2	3	4	5	- Adapts the lesson plan while delivering the lesson and shows flexibility
	●	●	●	●	●	●	●	●	●	●	
- Makes no concession to those who don't understand	5	4	3	2	1	1	2	3	4	5	- Tries different ways to explain and practice the language or language skill with those students who don't understand
	●	●	●	●	●	●	●	●	●	●	

CONCENTRATED EFFORT IS A WASTE OF TIME

- Has a didactic approach in delivering the information to the learners	5	4	3	2	1	1	2	3	4	5	- Adopts elements of discovery approach in order to cognitively engage students in the learning process
	●	●	●	●	●	●	●	●	●	●	

CONCENTRATED EFFORT IS A WASTE OF TIME

- Teaching reflects very few elements of cognitive engagement

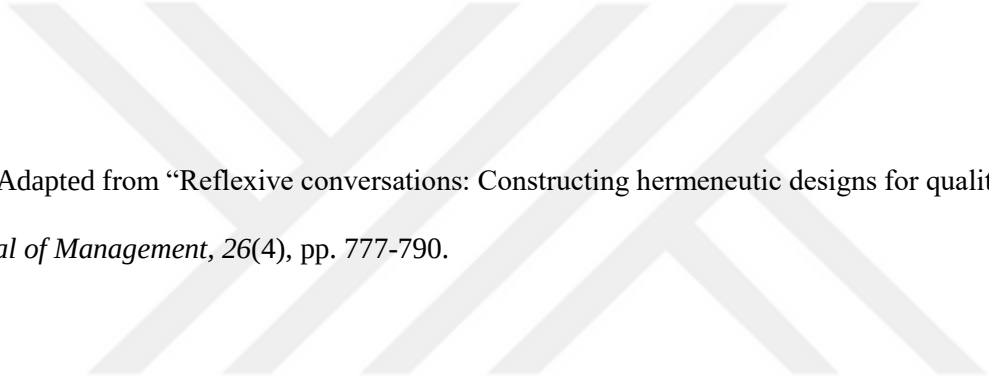
5 4 3 2 1 1 2 3 4 5
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- Learners are encouraged to engage cognitively in discovering meaning / and practicing language or skills

APPENDIX F

A Hermeneutic Analytical Framework

Phases	Aims of the phase	Areas of emphasis/questions to ask
Phase 1: Worldview / global view	To identify main topics reflecting what is emphasized by the speaker	Might reflect background, lifestyle and the current preoccupations of the research participant <i>Questions to consider:</i> What is the text being analysed a part of? What wider narratives might it be talking to? What are the key historical contexts of this research?
Phase 2: Formal presentation	To consider how these topics are formally presented by the speaker	Can reflect different linguistic features of the text, including choice of word, use of metaphor, referents employed, use of tense and modality <i>Questions to consider:</i> What is the meaning of the choice of formal elements of the text for how the respondents wants/choices to present their views?
Phase 3: Theme and pattern identification	To identify resonance and synergy between phase 1 and phase 2 readings are identified, i.e., theoretical framework is implemented as a mediating framework	With or without a theoretical framework. <i>Questions to consider:</i> where are we – what have we found so far? How are the global and micro readings speaking to each other? What questions are they putting to the interpreter (which in turn she can put back to the text?) Can a theoretical lens help to identify and bring the two types of analysis together?
Phase 4: Influence of the researcher	To identify elements within the text that appear to be a (direct) product of the interaction between the researcher and research participant through their pre-understanding of each other. This might include what is said or unsaid and how things are said, e.g., hesitations, pauses, use of modality	<i>Questions to consider:</i> what do the researcher and research participant know of each other? How was the interview context presented, negotiated and conducted?



Note. Adapted from “Reflexive conversations: Constructing hermeneutic designs for qualitative management research,” S. Robinson & R. Kerr, 2015, *British Journal of Management*, 26(4), pp. 777-790.

APPENDIX G

Epistemological Beliefs Inventory

BELIEFS QUESTIONNAIRE

The purpose of this questionnaire is to discover your views about knowledge and knowing, language learning and teaching, and professional learning. Your responses will help to improve the content and delivery of the ICELT course, as well as contribute to a piece of research I am carrying out.

Please answer as best you can by completing the five-point Likert scale questionnaire. I would be very grateful if, prior to answering the items, you could provide the background data requested. The questionnaire shouldn't take more than 30 minutes of your valuable time.

Your responses will remain anonymous. Please e-mail them to hilal@bilkent.edu.tr

Please tick the box if you would be willing to contribute further to my research.

Thank you. Hilal

Background information:

- a) Qualifications: Please tick the relevant box (BA, MA, teaching certificates and diplomas and where they were obtained from)

	BA	MA	TEACHING CERTIFICATE/DIPLOMA?
ELT/TESOL			
NONELT/TESOL			

- b) What foreign languages do you speak? Please tick level.

Foreign Language	ELM	PIN	INT	UPP	ADVANCED

- c) Total years of English language teaching experience: _____
If applicable:

Country/city	Duration	Student profile (purpose of learning, age)	Work context (e.g. language school, primary school, University English preparatory program)

- d) What was your motive for becoming an English language teacher? How do you feel about being a teacher now?

KNOWLEDGE AND KNOWING

Strongly Disagree 1 – Disagree 2 – Undecided 3 – Agree 4 – Agree Strongly 5

1	What is true today will be true tomorrow.	1	2	3	4	5
2	The best ideas are often the most simple	1	2	3	4	5
3	People should always obey the law.	1	2	3	4	5
4	Smart people are born that way.	1	2	3	4	5
5	Absolute moral truth does not exist.	1	2	3	4	5
6	Truth means different things to different people	1	2	3	4	5
7	Too many theories just complicate things	1	2	3	4	5
8	If a person tries too hard to understand a problem, they will most likely end up being confused. Students who learn things quickly are the most successful	1	2	3	4	5
9	Some people will never be smart no matter how hard they work	1	2	3	4	5
10	People who question authority are trouble makers.	1	2	3	4	5
11	I like teachers who present several competing theories and let their students decide which is best	1	2	3	4	5
12	It bothers me when instructors don't tell students the answers to complicated problems	1	2	3	4	5
13	Parents should teach their children all there is to know about life	1	2	3	4	5
14	If you haven't understood a chapter the first time through, going back over it won't help	1	2	3	4	5
15	The most successful people have discovered how they can improve their learning abilities	1	2	3	4	5
16	People can't do too much about how smart they are	1	2	3	4	5
17	When someone in authority tells me what to do, I usually do it	1	2	3	4	5
18	Things are simpler than most professors would have you believe	1	2	3	4	5
19	Working on a problem with no quick solution is a waste of time	1	2	3	4	5

20	The art of understanding the content in the textbook is to sort this knowledge according to one's existing knowledge	1	2	3	4	5
21	How much a student learns depends on the instructor	1	2	3	4	5
22	If a complicated concept is used in a textbook material, it is best to clarify its meaning before continuing to read	1	2	3	4	5
23	Instructors should focus on facts instead of theories	1	2	3	4	5
24	Sometimes there are no right answers to life's big problems	1	2	3	4	5
25	Science is easy to understand because it contains so many facts	1	2	3	4	5
26	If two people are arguing about something, at least one of them must be wrong	1	2	3	4	5
27	Children should be allowed to question their parents' authority	1	2	3	4	5
28	Really smart students don't have to work as hard to do well in school	1	2	3	4	5
29	The moral rules I live by apply to everyone	1	2	3	4	5
30	Some people are born with special gifts and talents	1	2	3	4	5
31	Self-study books are least useful	1	2	3	4	5
32	Some people just have a knack for learning and others don't	1	2	3	4	5
33	If you don't learn something quickly, you won't ever learn it	1	2	3	4	5
34	A course in learning strategies is useful for students	1	2	3	4	5
35	You can study something for years and still not really understand it	1	2	3	4	5
36	How well you do in school depends on how smart you are	1	2	3	4	5
37	In order to be successful in an exam, it is important to memorize definitions word by word	1	2	3	4	5

LANGUAGE LEARNING AND TEACHING

Strongly Disagree 1 – Disagree 2 – Undecided 3 – Agree 4 – Agree Strongly 5

38	Vocabulary and grammar can be learnt separately in a foreign language	1	2	3	4	5
39	Native speakers make a foreign language sound more difficult than it is	1	2	3	4	5
40	I get frustrated when the teacher's explanation is different from what my grammar book says	1	2	3	4	5
41	Teachers should present grammar rules one at a time so that learners can practice each one before going on to the next one	1	2	3	4	5
42	Learners' language errors should be corrected immediately to prevent bad habits forming	1	2	3	4	5
43	No matter how hard you try, if you don't have the innate ability to learn foreign languages you will never be a competent user of it	1	2	3	4	5
44	Students who do not do well in foreign language class simply do not work hard	1	2	3	4	5
45	Poor language learners cannot improve their performance over time	1	2	3	4	5
46	Languages are learnt mainly through imitation and repetition	1	2	3	4	5
47	Successful learners learn the foreign language quickly	1	2	3	4	5
48	Learning a foreign language takes time	1	2	3	4	5
49	If you try too hard to work out the meaning and use of a language item, you will get more confused	1	2	3	4	5
50	If you don't understand the language rule the first time presented, you won't ever learn it.	1	2	3	4	5
51	Good language learners are born with the ability to learn foreign languages quickly	1	2	3	4	5
52	New languages are not difficult to learn if you are allowed to experiment with the new language	1	2	3	4	5

53	Learning a foreign language is not any different from learning other subjects like maths or science	1	2	3	4	5
54	People who are good in learning foreign languages are not very good at maths and science	1	2	3	4	5
55	Students should learn what the teacher teaches	1	2	3	4	5
56	We should not question language experts' knowledge of the foreign language	1	2	3	4	5
57	Teachers should try to guide students to discover language rules or meaning of vocabulary items for themselves	1	2	3	4	5
58	There is no need to focus on form, learners will learn a language naturally if they get lots of exposure	1	2	3	4	5
59	Simple grammatical structures should be taught before more complex	1	2	3	4	5
60	I try to avoid topics which I cannot discuss well in the foreign language	1	2	3	4	5
61	Learning a foreign language is easier when learning is divided into distinct areas (grammar, vocabulary, pronunciation, individual skills, etc.)	1	2	3	4	5
62	Giving definitions in the native language helps students understand vocabulary in the foreign language	1	2	3	4	5
63	Knowing words in a foreign language is made easier through direct translation	1	2	3	4	5
64	Sentences in the target foreign language can be easily translated into the native language	1	2	3	4	5
65	Materials should expose students only to structures and words they have been taught	1	2	3	4	5
66	I guess unknown words and keep reading even if the meaning is not always right	1	2	3	4	5
67	It is the language teacher who knows best what the meaning and use of a language point is	1	2	3	4	5
68	Learners will learn to speak once they have learnt enough grammar and vocabulary	1	2	3	4	5
69	It does not bother me when the teacher uses a word in the foreign language I do not know	1	2	3	4	5

70	A word in the target foreign language has a clear definition in my native language	1	2	3	4	5
71	In order to grasp the meaning of a vocabulary item or a language structure, you need to have multi-exposure to it	1	2	3	4	5
72	Learning centers do not contribute to learning the target language	1	2	3	4	5
73	No amount of help from a teacher can turn poor language learners into good learners	1	2	3	4	5
74	Teachers should explain to learners how they need to study	1	2	3	4	5
75	Natural language learners pick up languages without effort	1	2	3	4	5
76	Good teachers need to know the answers to all student questions about the foreign language	1	2	3	4	5
77	Foreign language grammar is not as complicated as teachers say.	1	2	3	4	5
78	You can learn and be proficient in some language skills without studying others	1	2	3	4	5
79	The most successful language learners know how to study the target language	1	2	3	4	5
80	Language is a system which does not change.	1	2	3	4	5

PROFESSIONAL LEARNING

Strongly Disagree 1 – Disagree 2 – Undecided 3 – Agree 4 – Agree Strongly 5

81	Teachers are born not made	1	2	3	4	5
82	Different teaching contexts may require a change in teaching techniques and methodology	1	2	3	4	5
83	When learning to teach, I can understand the subject better if I relate it to the real classroom context	1	2	3	4	5
84	Given enough time, almost everybody could learn to teach if they really tried	1	2	3	4	5
85	Teaching skills are developed through practice with feedback	1	2	3	4	5
85	Professional learning takes place through practice in a teaching community rather than reading about the theory	1	2	3	4	5
86	To be able to teach effectively, I need to be taught the right procedures	1	2	3	4	5
87	What I get from an in-service training course depends mostly on the effort I invest	1	2	3	4	5
88	There is usually one best way to teach the subject English as a Foreign Language	1	2	3	4	5
89	Line managers/ tutors should tell directly during pre-conference how to teach the target lesson	1	2	3	4	5
90	I refer to my personal experiences as a learner when taking decisions about what I need to do in class	1	2	3	4	5
91	Sometimes I have to accept answers from tutors/line managers, even if I don't understand them	1	2	3	4	5
92	Feedback given by line managers and tutors on teaching practice should not be questioned by teachers	1	2	3	4	5
93	There is one appropriate way of teaching a subject	1	2	3	4	5
94	Teaching skills are developed through practice with observation and feedback	1	2	3	4	5
95	Learning about teaching develops by integrating theoretical knowledge about teaching to teaching practice in a specific context	1	2	3	4	5
96	I consider the expectations of my work context when taking decisions about what I need to do in class	1	2	3	4	5
97	Learning about teaching is finished once graduated from university	1	2	3	4	5

98	Integration of theoretical knowledge into practice happens automatically	1	2	3	4	5
99	Professional development is an individual process where the teacher has to find his/her own way	1	2	3	4	5
100	Working collaboratively with different experienced colleagues contributes to professional development	1	2	3	4	5
101	There is only one clear explanation / rationale for what happened during teaching	1	2	3	4	5
102	To develop professionally, one needs to know all the theories of learning and teaching	1	2	3	4	5
103	I find it confusing when a tutor shows more than one way to approach a teaching problem	1	2	3	4	5
104	One should adhere to one theory of learning and teaching	1	2	3	4	5
105	I don't think there is a need to reflect on why something worked well in the class, it is enough to know what worked in the classroom	1	2	3	4	5
106	An important part of learning to teach comes from the tutors on pre-service teacher education courses	1	2	3	4	5
107	The ultimate aim is to get better at achieving the goals defined by the work context, using the teaching materials given	1	2	3	4	5
108	All teachers develop professionally at the same pace and rate	1	2	3	4	5
109	When I don't understand something, I keep asking questions	1	2	3	4	5
110	It takes a lot of time to establish a teaching style that is in line with the expectations of the school	1	2	3	4	5
111	Knowledge of English as a subject area is sufficient to teach the language competently	1	2	3	4	5
112	An important part of learning to teach comes through practice and reflection on teaching experience while in the profession	1	2	3	4	5
113	There is more than one way to make sense of what happened during teaching	1	2	3	4	5
114	It is frustrating when I have to work hard to improve my teaching	1	2	3	4	5
115	Learning about teaching develops through practice in specific contexts	1	2	3	4	5
116	Knowledge of the materials and methods used in the teaching context is important to be a successful teacher	1	2	3	4	5

APPENDIX H

Sub-themes under Subsets

Table 1 Overview of themes under SSA

THEMES	STATEMENTS
Knowledge is simple; no depth of understanding that is presented by the authority is actually needed.	18. Things are simpler than most professors would have you believe (KK) 39. Native speakers make a foreign language sound more difficult than it is (LLT) 77. Foreign language grammar is not as complicated as teachers say (R). (LLT)
There is one single truth which does not depend on context and circumstances.	24. Sometimes there are no right answers to life's big problems (KK) 88. What I get from an in-service training course depends mostly on the effort I invest (PL) 26. If two people are arguing about something, at least one of them must be wrong (KK) 70. A word in the target foreign language has a clear definition in my native language (LLT) 82. Different teaching contexts may require a change in teaching techniques and methodology(PL) 103. I find it confusing when a tutor shows more than one way to approach a teaching problem (PL) 113. There is more than one way to make sense of what happened during teaching (PL)
Knowledge is simple and therefore it is enough to obtain knowledge from one single source.	38. Vocabulary and grammar can be learnt separately in a foreign language (LLT) 104. One should adhere to one theory of learning and teaching (PL)
Knowledge is simple and is acquired through memorization and learning rules by heart.	25. Science is easy to understand because it contains so many facts (KK) 37. In order to be successful in an exam, it is important to memorize definitions word by word (KK)

Table 2 Overview of themes under AI

THEMES	STATEMENTS
Knowledge remains at surface level	2. The best ideas are often the most simple (KK) 62. Giving definitions in the native language helps students understand vocabulary in the foreign language (LLT) 78. You can learn and be proficient in some language skills without studying others (LLT)
Avoid integration of knowledge coming from different sources	7. Too many theories just complicate things(KK) 61. Learning a foreign language is easier when learning is divided into distinct areas (grammar, vocabulary, pronunciation, individual skills, etc.) (LLT) 95. Learning about teaching develops by integrating theoretical knowledge about teaching to teaching practice in a specific context (R) (PL) 100. Working collaboratively with different experienced colleagues contributes to professional development (R) (PL)
Avoid relating to own existing knowledge	20. The art of understanding the content in the text book is to sort this knowledge according to one's existing knowledge (R) (KK) 83. When learning to teach, I can understand the subject better if I relate it to the real classroom context (R) (LLT)

Table 3 Overview of themes under AA

THEMES	STATEMENTS
Knowledge is easy to access	19. Working on a problem with no quick solution is a waste of time 60. I try to avoid topics which I cannot discuss well in the foreign language 63. Knowing words in a foreign language is made easier through direct translation

Knowledge is learnt from
formulaic explanation

23. Instructors should focus on facts instead of
theories

41. Teachers should present grammar rules one at a
time so that learners can practice each one before
going on to the next one

90. I refer to my personal experiences as a learner
when taking decisions about what I need to do in
class (R)

111. Knowledge of English as a subject area is
sufficient to teach the language competently

Knowledge should have
clear explanation

40. I get frustrated when the teacher's explanation is
different from what my grammar book says

69. It does not bother me when the teacher uses a
word in the foreign language I do not know (R)

Knowledge develops
linear

59. Simple grammatical structures should be taught
before more complex

APPENDIX I

Knowledge and Knowing Beliefs Questionnaire

Factor	Subset	Questions
SIMPLE KNOWLEDGE	Seek single answers	4. People should always obey the law. 10. Too many theories just complicate things 18. Things are simpler than most professors would have you believe.
	Avoid integration	11. The best ideas are often the most simple - In order to be successful in an exam, it is important to memorize definitions word by word - The art of understanding the content in the textbook is to sort this knowledge according to one's existing knowledge. (R)
CERTAIN KNOWLEDGE	Avoid ambiguity	1. It bothers me when instructors don't tell students the answers to complicated problems 2. Truth means different things to different people (R) 13. Instructors should focus on facts instead of theories. 22. Science is easy to understand because it contains so many facts 29. Working on a problem with no quick solution is a waste of time. 31. Sometimes there are no right answers to life's big problems.
	Knowledge is certain	6. Absolute moral truth does not exist. 19. If two people are arguing about something, at least one of them must be wrong 23. The moral rules I live by apply to everyone 25. What is true today will be true tomorrow.
OMNISCIENT AUTHORITY	Depend on authority	7. Parents should teach their children all there is to know about life - How much a student learns depend on the instructor - If a complicated concept is used in a textbook material, it is best to clarify its meaning before continuing to read (R)
	Don't criticize authority	20. Children should be allowed to question their parents' authority. (R) 27. When someone in authority tells me what to do, I usually do it. 28. People who question authority are troublemakers.

INNATE ABILITY	Success is unrelated to hard work	8. Really smart students do not have to work as hard to do well in school. 14. I like teachers who present several competing theories and let their students decide which is best. 15. How well you do in school depends on how smart you are. 26. Smart people are born that way. 32. Some people are born with special gifts and talents
	Ability to learn is innate	5. Some people will never be smart no matter how hard they work 12. People cannot do too much about how smart they are. 17. Some people just have a knack for learning and others do not
	Cannot learn how to learn	- A course in learning strategies is useful for students (R) - The most successful people have discovered how they can improve their learning abilities (R) - Self-study books are least useful
	Learning is quick	2. Students who learn things quickly are the most successful 30. You can study something for years and still not really understand it. (R)
QUICK LEARNING	Learn first time	16. If you do not learn something quickly, you will not ever learn it 21. If you have not understood a chapter the first time through, going back over it will not help 24. The more you know about a topic, the more there is to know. (R)
	Concentrated effort is a waste of time	9. If a person tries too hard to understand a problem, they will most likely end up being confused.

APPENDIX J

Language Learning Beliefs Questionnaire

Factor	Subset	Statements
SIMPLE KNOWLEDGE	Seek single answers	- A word in the target foreign language has a clear definition in my native language. - Sentences in the target foreign language can be easily translated into the native language. - Giving definitions in the native language helps students understand vocabulary in the foreign language. - Native speakers make a foreign language sound more difficult than it is. - Knowing words in a foreign language is made easier through direct translation. - Foreign language grammar is not as complicated as teachers say.
	Avoid integration	- Vocabulary and grammar can be learnt separately in a foreign language. - You can learn and be proficient in some language skills without studying others. - Learning a foreign language is easier when learning is divided into distinct areas (grammar, vocabulary, pronunciation, individual skills, etc.)
CERTAIN KNOWLEDGE	Avoid ambiguity	- I get frustrated when the teacher's explanation is different from what my grammar book says. - I try to avoid topics which I cannot discuss well in the foreign language. - I guess unknown words and keep reading even if the meaning is not always right. (R) - It does not bother me when the teacher uses a word in the foreign language I do not know. (R) - Materials should expose students only to structures and words they have been taught. - Simple grammatical structures should be taught before more complex.
	Knowledge is certain	- Learners will learn to speak once they have learnt enough grammar and vocabulary. - Teachers should present grammar rules one at a time so that learners can practice each one before going on to the next one. - Learning a foreign language is not any different from learning other subjects like math or science. - Language is a system which does not change.
OMNISCIENT AUTHORITY	Depend on authority	- Students should learn what the teacher teaches - Good teachers need to know the answers to all student questions about the foreign language - It is the language teacher who knows best what the meaning and use of a language point is. - Teachers should try to guide students to discover language rules or meaning of vocabulary items for themselves.

INNATE ABILITY	Do not criticize authority	- Learners' language errors should be corrected immediately to prevent bad habits forming. - No matter how hard you try, if you don't have the innate ability to learn foreign languages you will never be a competent user of it. - We should not question language experts' knowledge of the foreign language
	Success is unrelated to hard work	- Students who do not do well in foreign language class simply do not work hard (R) - Natural language learners pick up languages without effort - New languages are not difficult to learn if you are allowed to experiment with the new language
	Ability to learn is innate	- Good language learners are born with the ability to learn foreign languages quickly - There is no need to focus on form, learners will learn a language naturally if they get lots of exposure - People who are good in learning foreign languages are not very good at maths and science. - Poor language learners cannot improve their performance over time - No amount of help from a teacher can turn poor language learners into good learners
	Can't learn how to learn	- Teachers should explain to learners how they need to study (R) - The most successful language learners know how to study the target language (R) - Learning centers do not contribute to learning the target language
	Learning is quick	- Successful learners learn the foreign language quickly - Learning a foreign language takes time
QUICK LEARNING	Learn first time	- If you don't understand the language rule the first time presented, you won't ever learn it. - Languages are learnt mainly through imitation and repetition. (R) - In order to grasp the meaning of a vocabulary item or a language structure, you need to have multi-exposure to it. (R)
	Concentrated effort is a waste of time	- If you try too hard to work out the meaning and use of a language item, you will get more confused.

APPENDIX K

Professional Learning Beliefs Questionnaire

1	What I get from an in-service training course depends mostly on the effort I invest	Knowledge comes from reasoning
2	Sometimes I have to accept answers from tutors/line managers, even if I don't understand them	Knowledge comes from authority/ evaluate knowledge claims
3	To be able to teach effectively, I need to be taught the right procedures	Knowledge come from authority
4	I refer to my personal experiences as a learner when taking decisions about what I need to do in class	Evaluate knowledge claims
5	The ultimate aim is to get better at achieving the goals defined by the work context, using the teaching materials given	Knowledge comes from authority
6	An important part of learning to teach comes from the tutors on pre-service teacher education courses	Knowledge comes from authority
7	An important part of learning to teach comes through practice and reflection on teaching experience while in the profession	Knowledge comes from reasoning
8	Knowledge of the materials and methods used in the teaching context is important to be a successful teacher	Knowledge comes from authority
9	Teaching skills are developed through practice with observation and feedback	Knowledge comes from reasoning
10	Line managers/ tutors should tell directly during pre-conference how to teach the target lesson	Knowledge comes from authority
11	Professional learning takes place through practice in a teaching community rather than reading about the theory	How to make use of authority and expertise

Nature of Knowledge

a) *Certainty of Knowledge:*

12	There is usually one best way to teach the subject English as a Foreign Language	Knowledge is absolute
13	Teaching skills are developed through practice with feedback	Knowledge is evolving
14	Feedback given by line managers and tutors on teaching practice should not be questioned by teachers	Knowledge is absolute
15	There is one appropriate way of teaching a subject	Knowledge is absolute
16	All teachers develop professionally at the same pace and rat	(R)Knowledge is evolving

b) *Structure of Knowledge / Simple knowledge:*

17	When learning to teach, I can understand the subject better if I relate it to the real classroom context	Knowledge is interrelated
18	I find it confusing when a tutor shows more than one way to approach a teaching problem.	Knowledge is unambiguous
19	I don't think there is a need to reflect on why something worked well in the class, it is enough to know what worked in the classroom.	
20	I consider the expectations of my work context when taking decisions about what I need to do in class	
21	To develop professionally, one needs to know all the theories of learning and teaching.	
22	One should adhere to one theory of learning and teaching	Knowledge is isolated
23	Learning about teaching develops by integrating theoretical knowledge about teaching to teaching practice in a specific context	Knowledge is highly interrelated

24	There is more than one way to make sense of what happened during teaching	Knowledge is tentative & evolving
25	There is only one clear explanation / rationale for what happened during teaching	Knowledge is absolute
26	Knowledge of English as a subject area is sufficient to teach the language competently	Knowledge is absolute
27	Different teaching contexts may require a change in teaching techniques and methodology	Knowledge is contextual
28	Working collaboratively with different experienced colleagues contributes to professional development	Knowledge is interrelated/ evolving

Speed of Learning

29	It takes a lot of time to establish a teaching style that is in line with the expectations of the school	Learning happens gradually
30	Given enough time, almost everybody could learn to teach if they really tried	Learning happens gradually
31	Professional development is an individual process where the teacher has to find his/her own way	Learning happens gradually
32	Learning about teaching develops through practice in specific contexts	Learning happens gradually
33	Integration of theoretical knowledge into practice happens automatically	Learning happens quickly

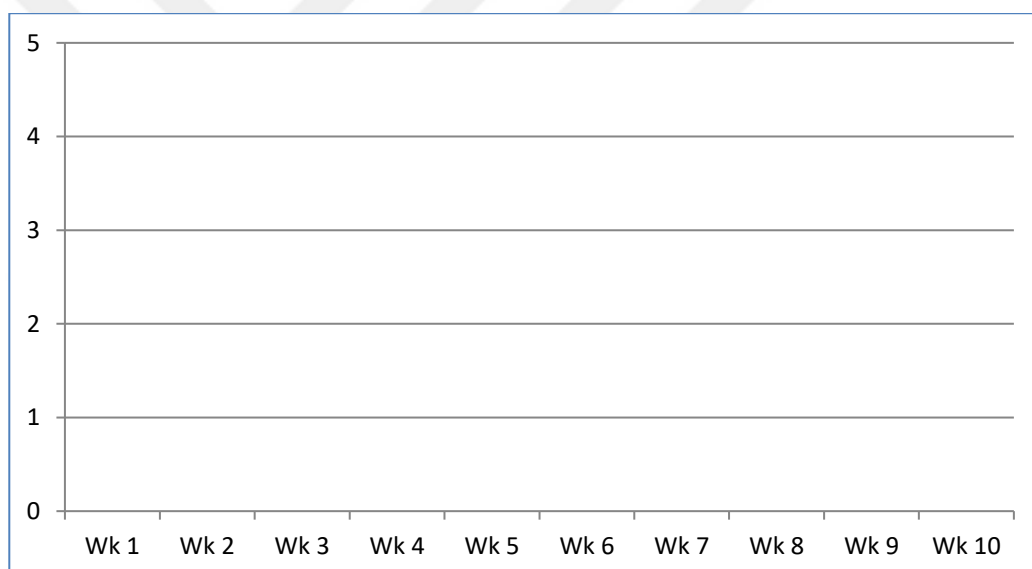
Innate Ability

34	When I don't understand something, I keep asking questions	Skills can be improved
35	It is frustrating when I have to work hard to improve my teaching	Knowledge is innate
36	Learning about teaching is finished once graduated from university	Knowledge is innate
37	Teachers are born not made	Knowledge is innate

APPENDIX L

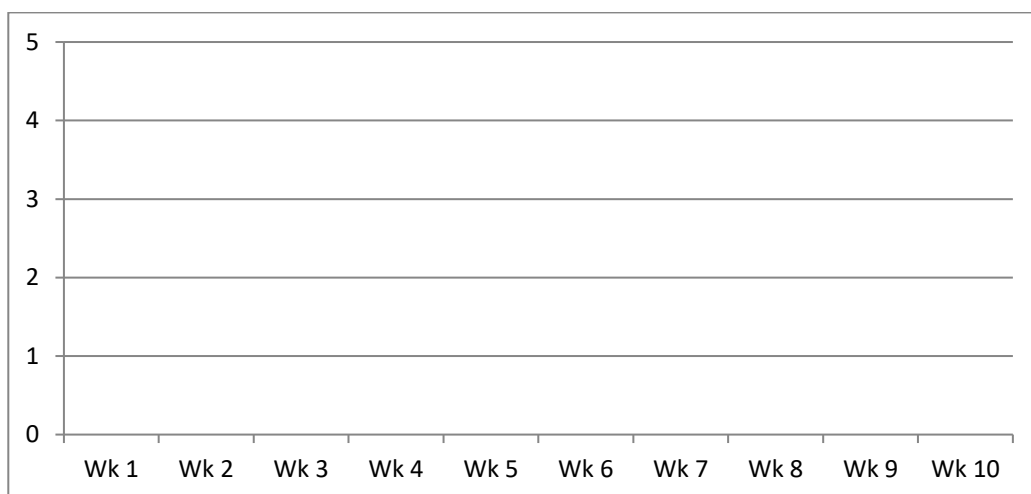
Prompts for Weekly Journal Entry in Phase 1

- Reflect on your students' learning in class this week
- Reflect on the teaching approaches you used and their effectiveness
- Was there anything in particular you concluded from your experiences related to how students learn and your own philosophy of learning and teaching?
- Does your students' learning mirror in any way the way you learn on the professional development course (ICELT)?
- How would you rate your overall level of motivation (1 = Low, 5 = Very high) this week? Please indicate on the diagram. What are the underlying reasons?



Prompts for Weekly Journal Entry in Phase 2

1. Think back to your classes this week and to the learning activities that you planned and carried out for your students.
 - Did you experience a change in any way in your beliefs about how students learn?
 - If so, what exactly changed and why?
 - If not, in what way did your students learning support your theories of learning?
2. Which of the following activities did you engage in this week (please tick)?
 - A TP Cycle
 - An ICALT Assignment
 - A tutorial with your personal tutor
 - An ICALT session
 - Discussions with colleagues in TUs related to teaching
 - Did anything surprise you when engaging in these activities in terms of your understanding of how students learn?
 - Did any of these experiences bring you to question your beliefs about students' learning? If so, in what way?
 - As a teacher in a new context, did any of these experiences lead you to question how you learn best as a teacher?
 - How do you feel about your understanding of learning languages? Has anything changed in the way you see language learning?
3. What aspects of your teaching were you satisfied/dissatisfied with? Could you say why and illustrate with some examples?
4. How would you rate your overall level of motivation (1 = Low, 5 = Very high) for this week?
 - Please put a mark on the diagram to reflect this for the appropriate week.
 - What explains your level of motivation as marked on your diagram?



APPENDIX N

Interview Questions for Phase 1

1. Tell me a bit about your school years, your teachers, and yourself as a learner then.
2. Who do you think is responsible for your learning, or the knowledge you have acquired?
3. How did you study as a learner? (Maths vs social science classes, FL classes)
4. What made you a good learner in xx class?
5. From your understanding, based on personal experience, what is knowledge to you?
6. How do you acquire knowledge? Give examples from different instances.
7. How would you define 'truth'?
8. What would you do when the information given by your instructor during your university education years/previous teacher qualification course contradicts what is told on ICELT/ by your line manager? How would you resolve this problem? (the same question for methodology books vs ICELT instructor). Have you ever encountered a situation in which you heard two explanations for the same idea?
9. How do you know when somebody is an expert?
10. What stands out for you and your life over the last few years?

Cover the 6 topics in the follow up questions: the roles of learners, instructors and peers, the nature of knowledge, the evaluation in learning, and decision making.

Leave the questions rather broad in order not to limit the respondents.

APPENDIX O

Interview Questions for Phase 2

A Sample from Deniz's Interview

1. What stands out for you over the last couple of months in terms of your development as a teacher since you have started working in BUSEL?
2. What can you say about “the Deniz” as a teacher when she first started teaching in BUSEL and now? What in your opinion are the underlying reasons for this? What motivates you regarding your professional development?
3. Who do you think is responsible for learning? (Students and own professional development) Is it something innate or can it be learnt? Learner autonomy critical learner were mentioned quite frequently in the interview. How do you think it is put into practice? Can you give any examples from your lessons?- (ss learnt from each other by giving presentations- is it reflected in her teaching? Should SS be giving options to choose from in terms of what they want?
4. What is the role of the teacher? How should she structure her lessons? In what way do you practice this in your classes? (her economics teacher had a didactic approach which she hated and had to withdraw from the course; T should give the necessary input/guidance and the ss go & research the rest at home; believes lessons should have variety
5. What does engaging learners in the lesson mean to you? In what way do you practice this engagement in your classes? Can you give any examples of how you engage learners from your lesson? (whole semester was spent on preparing for a play
6. What does knowledge mean to you? How do you acquire knowledge? (when doing their project homework, they were not allowed to site from books or internet but had to paraphrase – why? Was never taught explicit grammar but has to teach – how does she feel about teaching grammar?
7. Do you think it is important to get something right the first time? How do you feel when you/your students make mistakes?
8. How do you feel when you can't understand something for the first time? What do you do? Please explain why.

9. In your opinion how does learning take place? (did a lot of poster, self-study in class, inquiry-based learning; used controversy topics in her TP, why? Learning mainly takes place in the classroom – SS need to know how to be an autonomous learner
10. How would you define the truth?
11. Have you been in a situation where you received contradictory information/feedback? How did you resolve the problem?
12. How do you know when someone is an expert?



APPENDIX P

Approval Letter from Ethics Committee



Bilkent Üniversitesi

Akademik İşler Rektör Yardımcılığı

Tarih: 19 Kasım 2015
Gönderilen: Hilal Handan Atlı
Gönderen: Hitay Özbay
 Provost Yardımcısı
Konu: “Changes in Teachers’ ...” çalışması etik kurul onayı

Üniversitemiz İnsan Araştırmaları Etik Kurulu, 19 Kasım 2015 tarihli görüşme sonucu, “Changes in Teachers’ Personal Epistemology on a Formal In-service Training Course” isimli çalışmanız kapsamında yapmayı önerdiğiniz etkinlik için etik onay vermiş bulunmaktadır. Onay, ekte verilmiş olan çalışma önerisi, çalışma yürütücüleri, ve bilgilendirme formu için geçerlidir.

Bu onay, yapmayı önerdiğiniz çalışmanın genel bilim etiği açısından bir değerlendirmesine karşı gelmektedir. Çalışmanızda, kurumumuzun değerlendirmesi dışında kalabilen özel etik ve yasal sınırlamalara uymakla ayrıca yükümlüsünüz.

Etik Kurul Üyeleri:

Ünvan / İsim	Bölüm / Uzmanlık
1. Prof. Dr. Hitay Özbay	Elektrik ve Elektronik Müh.
2. Doç.Dr. Fatma Taşkın	İktisat
3. Prof.Dr. Haldun Özaktaş	Elektrik ve Elektronik Müh.
4. Prof.Dr. Tayfun Özçelik	Moleküler Biyoloji ve Genetik
5. Prof.Dr. Erdal Onar	Hukuk
Yd.1. Yrd.Doç.Dr. Ali Osmay Güre	Moleküler Biyoloji ve Genetik
Yd.2. Prof.Dr. Cemal Yalabık	Fizik

Kurul karar/toplantı No: 2015_11_19_02

APPENDIX Q

Consent Form for Research Participants

BİLKENT UNIVERSITY

SCHOOL OF ENGLISH LANGUAGE

Consent Form

Title of Project:

“Changes in Teachers’ Personal Epistemology on a Formal In-service Training Course.”

Name of Researcher: Hilal Handan Atlı

1. I confirm that I have read and understand the Plain Language Statement for the above study and have had the opportunity to ask questions.
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.
3.
 - *consent to interviews being audio-taped,*
 - *acknowledgement that copies of transcripts will be returned to participant for verification,*
 - *participants to be referred to by pseudonym or identified by name in any publications or conference presentation arising from the research,*
 - *data from teaching practice, reflective journals and or assignments to be referred to for validation purposes*
 - *confirmation that participation or non-participation in the research will have no effect on grades/assessment/employment*
4. I agree / do not agree (delete as applicable) to take part in the above study.

_____	_____	_____
<i>Name of Participant</i>	<i>Date</i>	<i>Signature</i>

_____	_____	_____
<i>Researcher</i>	<i>Date</i>	<i>Signature</i>

VITA

PERSONAL DETAILS

Name: Hilal Handan Atlı

Work Address: Bilkent University
English Language Preparatory
Programme

Job Title: Instructor (Öğretim Görevlisi)

Nationality: Turkish

Languages: Turkish (Native) German (Native) English (Native-like)

QUALIFICATIONS

Diploma	Area	Institution	Years
PhD	Curriculum and Instruction	Bilkent University, Ankara, Turkey	2013-2021
MA	Management in Education	Bilkent University, Ankara, Turkey	2003-2005
Diploma - Teacher Trainer Training	Teacher Education	Bilkent University, Ankara, Turkey	1999-2000
Diploma TEFLA	Practical Component / ELT	Bilkent University, Ankara, Turkey	1997-1999
CEELT	English Language Teaching	Cambridge English	1995-1996
COTE	English Language Teaching	Cambridge English	1993-1994
BA	English Language Teaching	Hacettepe University, Faculty of Education, Ankara, Turkey	1987-1992

PROFESSIONAL EXPERIENCE

Position	Area	Institution	Years
Language Instructor	English Language	Preparatory Programme, Bilkent University	1993 - present
Teacher Trainer	Tutor COTE Course	Preparatory Programme, Bilkent University	2000-2002
Teacher Trainer	Tutor DELTA Course	Preparatory Programme, Bilkent University	2001-2003
Teacher Trainer	Tutor CEELT	Preparatory Programme, Bilkent University	2001-2003
Teacher Trainer	Tutor ICELT	Preparatory Programme, Bilkent University	2003-2020
Teacher Trainer	ICELT Course Coordinator	Preparatory Programme, Bilkent University	2005-2020
Teacher Trainer	ICELT Moderator	Cambridge English	2010-Present

RESEARCH INTERESTS

- In-service Teacher Education
- Teacher Epistemologies
- Transitions in Education
- English for Academic Purposes

PUBLICATIONS

- Atı, H. H., & O'Dwyer, J. (In press). The contribution of personal epistemological beliefs to uptake in in-service professional development: a case-study. *Professional Development in Education*.
- O'Dwyer J., & Atı, H. H. (2018). ESP/EAP in University Programs in a Non-target Language Community – Issues and Challenges. In Y. Kırkgöz & K. Dikilitaş (Eds.), *Key issues in English for specific purposes in higher education* (pp. 291-304). English Language Education, Vol.11. Springer.
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PRESENTATIONS

- Atı, H. H., & O'Dwyer, J. (2019). *Teacher Epistemological Beliefs and Sustainable Change in Professional Development* [Conference presentation]. Association for Teacher Education in Europe, 41st ATEE Annual Conference, Bath Spa University, Bath, UK, August 14-16.
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- Clark, B., Atı, H. H. (2004). *Welcome to the Speakeasy: Helping learners towards better speaking skills*, 38th Annual IATEFL Conference, Liverpool, UK, 13-17 April 2004.
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