



HACETTEPE ÜNİVERSİTESİ
EĞİTİM BİLİMLERİ ENSTİTÜSÜ

Department of Foreign Language Education
English Language Teaching Program

A CASE STUDY ON PRE-SERVICE ENGLISH TEACHERS' FORMATIVE
ASSESSMENT TEACHER COGNITION

Dilara SOMUNCU

Ph.D. Dissertation

Ankara, (2021)

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ADAY İNGİLİZCE ÖĞRETMENLERİNİN BİÇİMLENDİRİCİ DEĞERLENDİRME
ÖĞRETMEN BİLİŞİ ÜZERİNE BİR DURUM ÇALIŞMASI

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Abstract

This dissertation explores student teachers' construction of formative assessment teacher cognition with a sociocultural perspective in language teacher education context. The current study has three focal points to investigate: the factors influencing the construction of pre-service language teachers' formative assessment cognition, how the construction process of formative assessment teacher cognition progresses, and how sociocultural resources mediate the construction process of formative assessment teacher cognition. With these aims, a holistic single-case study was adopted as the research design. A total of eight senior student teachers of English constituted the participants of the present case study. The data were collected through multiple sources including reflective journals, documents (lesson plans), semi-structured interviews, classroom observation (field notes), and pre-observation and post-observation conferences. The collected data were analysed through a grounded content analysis and sociocultural discourse analysis. The analysis resulted in three major factors as the main sources of pre-service language teachers' formative assessment cognition: *prior language learning experiences*, *teacher education*, and *contextual factors*. The findings also indicated that the construction process of formative assessment cognition progressed through six main major shifts: *dissonance*, *exploration of teaching-related beliefs*, *self-examination*, *re-examination of alternatives*, *approval*, and *integration*. In this construction process, sociocultural means like mediation and cognitive/emotional dissonances were also detected and explained in relation with the findings. In the light of the results, pedagogical implications for L2 teacher education, teacher cognition, and formative assessment were provided.

Keywords: teacher cognition, formative assessment, sociocultural theory, pre-service EFL teachers, teacher education, case study.

Öz

Bu tez, öğretmen adaylarının biçimlendirici değerlendirme öğretmeni bilişinin inşasını dil öğretmeni eğitimi bağlamında sosyokültürel bir bakış açısıyla incelemektedir. Mevcut çalışmanın araştırdığı üç odak noktası bulunmaktadır: hizmet öncesi dil öğretmenlerinin biçimlendirici değerlendirme bilişinin inşasını etkileyen faktörler, biçimlendirici değerlendirme öğretmeni bilişinin oluşum sürecinin nasıl ilerlediği ve sosyokültürel kaynakların biçimlendirici değerlendirme öğretmeni bilişi oluşturma sürecine nasıl aracılık ettiği. Bu amaçlarla, araştırma tasarımı olarak bütünsel bir tek durum çalışması benimsenmiştir. Bu durum çalışmasının katılımcılarını toplam sekiz İngilizce öğretmen adayı oluşturmuştur. Veriler, yansıtıcı yazımlar, belgeler (ders planları), yarı yapılandırılmış görüşmeler, sınıf gözlemi (saha notları), ön gözlem ve gözlem sonrası konferanslar dahil olmak üzere farklı veri toplama yöntemleri aracılığıyla toplanmıştır. Toplanan veriler, içerik analizi ve sosyokültürel söylem analizi yoluyla analiz edilmiştir. Analizler, hizmet öncesi dil öğretmenlerinin biçimlendirici değerlendirme bilişinin ana kaynakları olarak üç ana faktör ortaya çıkarmıştır: *geçmiş dil öğrenme deneyimleri*, *öğretmen eğitimi* ve *bağlamsal faktörler*. Bu etken kaynaklar, dil öğretmeni bilişini şekillendiren daha spesifik faktörlere ayrılmıştır. Bulgular ayrıca, biçimlendirici değerlendirme bilişinin inşa sürecinin altı ana değişimle ilerlediğini göstermiştir: *uyumsuzluk*, *öğretimle ilgili inançların keşfi*, *öz inceleme*, *alternatiflerin yeniden incelenmesi*, *onay* ve *entegrasyon*. Bu inşa süreci doğrusal olmamakla birlikte katılımcıların biçimlendirici değerlendirme öğretmeni bilişini oluşturan ana faktörler tarafından şekillendirilmiştir. Bu inşa sürecinde arabuluculuk ve bilişsel / duygusal uyumsuzluklar gibi sosyokültürel araçlar tespit edilmiş ve bulgularla bağlantılı olarak açıklanmıştır. Araştırmanın sonuçları ışığında yabancı dil öğretmeni eğitimi, öğretmen bilişi ve biçimlendirici değerlendirme ile ilgili eğitimsel çıkarımlar sunulmuştur.

Anahtar sözcükler: öğretmen bilişi, biçimlendirici değerlendirme, sosyokültürel teori, İngilizce öğretmen adayları, öğretmen eğitimi, durum çalışması.

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Symbols and Abbreviations

EFL: English as a foreign language

SLA: Second language acquisition

ELT: English Language Teaching

L2: Second/Foreign language

SCT: Sociocultural theory

SCDA: Sociocultural discourse analysis

ZPD: Zone of proximal development

IDZ: Intermental development zone

FA: Formative assessment

CA: Conversation analysis

TE: Teacher educator

TT1, TT2: Trainee teacher 1, Trainee teacher 2

ARG: Assessment Reform Group

ELTP: English language teaching programme

CEFR: Common European Framework of Reference for Languages

MoNE: Ministry of National Education

EPOSTL: European Portfolio for Student Teachers of Languages

ELTE: English language testing and evaluation

Chapter 1

Introduction

With the recognition of the view that teaching is a multifaceted profession, studies on language teacher cognition have started to appear mainly in 1990s by gathering pace until recent years. As an area of interest in applied linguistics, language teacher cognition has been interested in investigating “the unobservable dimension of language teaching” (Borg, 2003, p. 81), and it is based on the premise that teachers and teaching profession can only be understood by focusing on teachers’ beliefs, thoughts, and knowledge in relation to their practice (Borg, 2015). Teacher cognition research has been conceptualized as studying the hidden side of the profession to shed light on teachers’ beliefs, behaviours, and classroom practices (Tsui, 2011). This study area embraces teaching as thoughtful behaviour rather than only behaviours by focusing on the reciprocal relationship between teachers’ cognitive processes and classroom practices. By associating teacher cognition with an iceberg, Borg (2019) described the term as a multifaceted phenomenon shaped by external and internal influences such as school policies, beliefs, knowledge, attitudes, feelings, and thoughts.

In Borg’s (2003) seminal work, teacher cognition is defined as “what teachers think, know, and believe and the relationships of these mental constructs to what teachers do in the language teaching classroom” (p. 81). Borg (ibid.) used this definition with an emphasis on the complexity of teachers’ mental lives. On the other hand, from a discursive perspective, Li (2017) defined teacher cognition as “teachers’ understanding, knowing, positioning, conceptualising and stance-taking that are publicly displayed in action” (p. 176). With a more sociocultural orientation, in his most recent work, Borg (2019) defined teacher cognition as an “inquiry which seeks, with reference to their personal, professional, social, cultural and historical contexts, to understand teachers’ minds and emotions and the role these play in the process of becoming, being and developing as a teacher” (p. 20).

Language teacher cognition studies have been conducted in different aspects of teaching and in various contexts such as teachers’ cognitions and classroom practices of teaching grammar (Borg, 1998, 1999; Farrell, 1999; Farrell & Patricia, 2005; Phipps & Borg, 2009), teachers’ metalinguistic awareness

(Andrews, 2007; Borg, 2005), teachers' decision-making strategies (Bailey, 1996, Richards, 1996; Woods, 1996), instructional decisions (Borg 2003; Mangubhai et al., 2004), literacy instruction (Graden, 1996; Tercanlioglu, 2001), and teaching writing (Burns, 1992; Ngo, 2018; Tsui, 1996). Furthermore, some studies revealed the factors influencing teacher cognition such as contexts (Lee, 2008), previous learning experiences (Reichert, 2009; Worden, 2015), and teacher education programmes (Gebhard, Chen, Graham, & Gunawan, 2013; He & Prater, 2014; Lee, 2013; Xiao, 2014). The domain of teacher cognition has been founded on a key assumption that teachers and teaching cannot be fully understood without investigating the effects of teachers' knowledge, understanding, thoughts, and beliefs on their practice (Phipps & Borg, 2009). This perspective has paved the way for the exploration of teachers' mental lives in a qualitative and holistic manner (Borg, 2015).

Williams and Burden (1997) asserted that everything in classrooms is affected by what and how teachers think with the claim that teachers' beliefs about how languages are learned and taught are more influential on their classroom behaviours than any methodology or coursebook they adopt and follow. Likewise, Li (2017) emphasized the importance of teacher cognition by stating its significance in developing effective pedagogy and teacher learning. These studies contribute to the literature by reporting a link between teacher cognition and their classroom practices influenced by teachers' perceptions of teaching and learning (e.g., Barcelos, 2016; Borg, 2006; Farrell, 2015; Farrell & Ives, 2015; Li & Walsh, 2011; Mangubhai et al., 2004; Ng & Farrell, 2003). In the meantime, recent studies have confirmed the 'symbiotic' relationship between teacher cognition and classroom practice (Borg, 2015; 2019; Li & Walsh, 2011; Li, 2017; 2020), which means that teacher cognition shapes classroom behaviours while it is also shaped by these teacher behaviours. This two-sided relationship is also emphasized by Borg (2006), who put forward that teacher cognitions and practices are integral parts of teaching, and this mutuality is also shaped by contextual factors which mediates the relationship between teacher cognitions and behaviours. As Li (2020) stated, teacher cognition is a multifaceted construct which holds an important place in teachers' professional lives and teacher learning. In addition to describing these

complex dimensions of teaching, teacher cognition research also tries to explain the effects of external and internal factors on what teachers do and how they develop.

According to Borg (2019), the relationship between teacher cognition and professional learning is quite important, so teacher cognition research is critical in providing implications for language teacher education. The investigations on teacher cognition have contributed to the understanding of the process of learning-to-teach significantly by broadening the perspectives of both researchers and practitioners (Li, 2017; Öztürk, 2015). Studies on teacher cognition have always affected the field of language teaching with new trends and major changes (Crandall, 2000). These changes can be observed in the emergence of a move from product-oriented theories to process-oriented theories of learning, teaching, and teacher learning, and in the recognition of the role of teachers' prior learning experiences and the importance of reflection and self-observation. These studies have indicated that it is essential to understand teachers' beliefs and practices for an effective teacher education (Lee, 2018). In a similar vein, according to Johnson (2006), teacher cognition research has firmly contributed to the field of language teacher education significantly by capturing the complexities of how teachers learn to teach, what they know and believe, and how they conduct their work in various contexts.

Despite the wide range of studies in the field of language teacher cognition, the epistemological and conceptual foundations of the domain have largely gathered around the cognitivist paradigm that separates teachers' beliefs from their practices by representing the individualist approach of language teacher cognition literature (Burns, Freeman, & Edwards, 2015; Kubanyiova & Feryok, 2015; Ngo, 2018). The mainstream language teacher cognition domain is criticized for its "limited epistemological landscape for understanding cognition" (Kubanyiova & Feryok, 2015, p. 436), for which a special issue of *The Modern Language Journal* (2015) viewed teacher cognition as "emergent sense making in action" (p. 445) in order to bridge the gap between teacher cognition, classroom practice and student learning. These recent studies suggest embracing the phenomenon in a larger vision with a shift towards the socially embedded nature of teacher cognition (Burns, Freeman, & Edwards, 2015; Ngo, 2018; Li, 2017, 2020). With an emphasis on the need to study "the contexts of participation in practice" (Kubanyiova & Feryok, 2015, p. 438)

in language teacher cognition research, the focus of the studies turns out to be subsuming teacher beliefs and practices rather than separating them.

Recent literature represents an increasing number of studies that adopt a sociocultural perspective to examine and conceive teacher cognition within the context of teacher education (e.g. Edwards, Gilroy, & Hartley, 2002; Edwards, 2010; Feryok, 2012; Johnson, 2009; Johnson & Golombek, 2011, 2016; Smagorinsky, Cook, & Johnson, 2003). These studies are in agreement that the social activities in which teachers engage fundamentally forms the L2 teacher cognition.

Sociocultural theory is based upon the studies conducted by Vygotsky (1978, 1986) with an emphasis on the significance of the social context and culture in an individual's development and on how a child's cognitive tools like language and social contexts are shaped by culture (Narayan et al., 2013). The concept of social constructivism was termed as sociocultural perspective and was elaborated on with further studies conducted by Lave (1988), Lave and Wenger (1991), Rogoff (1993) and Wertsch (1991). Lantolf (2000a, 2006) conducted seminal studies related to the importance of language and sociocultural context together in developing meaning and constructing knowledge in the context of second language education by highlighting the role of culture and context in shaping second language acquisition.

Vygotsky's sociocultural theory, as a theory of mind, focuses on the social origins of the cognition by examining the chronological developments of the mental phenomena (Wertsch, 1995). In this theory, cognition is socially mediated, and it is "the internalized result of social interactions" (Vygotsky, 1981, p. 147). According to this theory, when people participate in sociocultural activities, higher mental functions initially occur on the inter-psychological plane (between people). However, these functions are transformed to the intra-psychological plane through internalization (Johnson, 2009, 2015; Johnson & Golombek, 2016), and this is a transformative process through which an individual's cognitive structure of concepts, knowledge or skills is shaped (Johnson & Golombek, 2011). When these concepts are placed into the language teaching context, it can be claimed that teachers' beliefs emerge through participation in teaching and learning activities, which leads to the idea that "changes in social activity affect changes in individual cognition" (Johnson, 2015, p.516). According to Johnson (ibid.), teacher cognition within the context of teacher education occurs through participation in social

interaction (inter-psychological) which eventually turns into teacher thinking through internalized psychological tools (intra-psychological).

According to Li (2017), learning-to-teach is a multifaceted process including meaning construction regarding teaching and professional growth in lesson planning, activity design, materials adaptation and development, instructional implementation of a plan, feedback and assessment. By looking at what constitutes the process of teacher learning, it can be said that it is a complex process to follow, especially when we think that the elements requiring development and growth (e.g. lesson planning, feedback, assessment, etc.) must be conducted for every single lesson. Rea-Dickins (2004) stated assessment as an important part of teaching, as assessment requires making decisions about materials, learning tasks, and lesson content. Teachers' observations of their students as a part of their professional practice help teachers to develop insights about learning outcomes and learners' overall performance (ibid.). By accomplishing these practices, the ultimate goal of teachers is to create successful learning opportunities for learners, and hopefully foster student learning in the end. If we educate teachers to develop in these constituents of teacher learning stated above, we also need to educate them to know the real moments of student learning as it is the main goal of teaching and learning. This perspective indicates us the importance of investigating the concepts of teacher cognition and formative assessment together. According to Turner and Purpura (2016), teachers are responsible to establish an effective learning environment by creating opportunities for formative assessment. They also claimed that teachers need to improve an understanding of how students learn in order to implement formative assessment, which requires the skills of developing appropriate assessment skills, being aware of the moments for assessment, understanding the success criteria, interpreting the results, acting upon these results, and making informed decisions for the next steps of teaching and learning. Turner and Purpura (ibid.) highlighted on their discussion by drawing attention to the ongoing need for pre-service and in-service teacher education in these formative skills of assessment as suggested by Stiggins (2010) as well.

Johnson (2015) specified teacher education as a unique process which enables teachers to understand what it means to be a teacher and how to support ongoing student learning. Based on this criterion made by Johnson (ibid.) for teacher

education, the present study takes the point of view that formative assessment is one of the teaching skills that teacher education should enable pre-service teachers to attain to support student learning. This perspective comes from the features of formative assessment as it is “the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there” (Assessment Reform Group, henceforth ARG, 2002). By looking at this definition, it can be claimed that teachers’ cognition related to formative assessment is an important part of teacher learning to enhance ongoing student learning. Without a particular attention to the development of formative assessment skills in a training process, it would be difficult for prospective teachers to be aware of the opportunities (for increased student learning) that they can use formative assessment during their teaching practices. With a specific attention to the teacher cognition about formative assessment, the current study aims to investigate the process of participant pre-service language teachers’ attaining or critiquing the skills of eliciting evidence of student achievement and interpreting and acting upon this evidence to support student learning based on the description made by Black and Wiliam (2009):

Practice in a classroom is formative to the extent that evidence about student achievement is elicited, interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction that are likely to be better, or better founded, than the decisions they would have taken in the absence of the evidence that was elicited (Black & Wiliam, 2009, p. 9).

Used interchangeably with the term of ‘assessment for learning’, another definition for formative assessment is that it is “part of everyday practice by students, teachers and peers that seeks, reflects upon and responds to information from dialogue, demonstration and observation in ways that enhance ongoing learning” (Klenowski, 2009, p. 264). Klenowski’s definition focuses on the active nature of formative assessment. This feature of formative assessment caters for the interpretation and use of the evidence after obtaining the evidence of student understanding (Can Daşkın, 2017a). In terms of the development of formative assessment skills, then it will not be enough for pre-service teachers to be trained on noticing the evidence of student learning, they also need to develop the skills of interpreting and using this evidence for successful task completion or to enhance learning as the ultimate goal of teaching. While exploring the construction of these skills, a specific focus on language teacher cognition about formative assessment

may broaden the scope of the field of teacher cognition in terms of bringing an under-researched investigation subject – formative assessment.

Despite the sovereignty of traditional large-scale testing in recording student achievement, there has been a growing awareness of using assessment to support learning and inform teaching in recent years. According to Turner (2012), classroom-based assessment has been an emerging and evolving research agenda with its focus on learning as a result of the increased awareness of teacher-led assessment activities internal to the classroom. In line with the scope of the present study, the relevant literature represents studies investigating the role of teacher knowledge, experience, and beliefs in formative assessment practices in language teaching contexts (e.g. Büyükkarçı, 2014; Rea-Dickins, 2004; Xu & Liu, 2009; Yin, 2010). Similarly, a number of studies have focused on the relationship between teachers' views about language and language learning and their classroom-based assessment practices (e.g. Hill & McNamara, 2012; James, 2006; Leung, 2005, 2007; Wiliam, 2001). However, despite a growing interest in researching classroom-based assessment in recent years, the nature of thought processes used by teachers when conducting such assessment has received less attention. Drawing upon inadequate attention to formative classroom practice with a focus on teacher's decision-making process, attitudes, beliefs, knowledge and thoughts, the present study aims to investigate the construction of formative assessment skills and the construction process with a sociocultural perspective on pre-service language teacher cognition.

Classroom-based assessment has been explained with different terms such as alternative assessment, teacher-based assessment, school-based assessment, assessment for learning, learning-oriented assessment, and formative assessment. Despite all different and common focus points of these terms, according to Davison and Leung (2009), they all foster “a more teacher-mediated, context-based, classroom-embedded assessment practice” (p. 395). For the aims of the present study, the terms ‘formative assessment’ and ‘formative classroom practice’ will be used interchangeably as a sort of classroom-based assessment in order to highlight the construction of formative dimension of assessment skills for pre-service language teachers.

Statement of the Problem

Li (2017) reported that there has been a growing interest in the study of language teacher cognition, and this is evidenced by the special issues of *Language Teaching Research* (2010), *System* (2011), *The Modern Language Journal* (2015). By looking at this level of interest, it can be claimed that teacher cognition is an important field of inquiry to understand teachers' professional development and classroom instruction. Previous studies have generally focused on teachers' beliefs about subject matters (e.g. Andrews, 2007; Svalberg & Askham, 2014), the consistency between teacher and learner beliefs (e.g. Cohen & Fass, 2001; Peacock, 1999), the influence of beliefs on teacher education programmes (e.g. Busch, 2010), the influence of beliefs on teachers' classroom practice (e.g. Breen et al., 2001), and the changes in teachers' beliefs (e.g. Mattheoudakis, 2007; Peacock, 2001). However, despite its wide range of investigation scope (reviewed in Borg, 2003, 2015, 2019), the body of research related to language teacher cognition has paid relatively little attention to the thought processes underlying teachers' assessment practices (Yin, 2010). By emphasizing the significance of teacher thinking research, Borg (2019) described teacher cognition as an "inquiry which seeks, with reference to their personal, professional, social, cultural and historical contexts, to understand teachers' minds and emotions and the role these play in the process of becoming, being and developing as a teacher" (p. 20). As teacher cognition is important in understanding and improving teachers' professional development and classroom practices, the present study is concerned with exploring personal, professional, sociocultural, and historical dimensions of formative assessment teacher cognition. In the relevant literature of language teaching contexts, there are examples of studies investigating the role of teacher knowledge, experience, and beliefs in classroom-based assessment practices (e.g. Büyükkaracı, 2014; Hill & McNamara, 2012; Rea-Dickins, 2004; Xu & Liu, 2009; Wiliam, 2001; Yin, 2010). However, these studies do not discuss the concept of teachers' assessment cognition with a certain theoretical framework. At this point, the present study aims to contribute to the related literature by using Vygotskian sociocultural theory as a theoretical and methodological framework in investigating formative assessment teacher cognition.

In the present study, through various reflective activities, it was tried to help participant pre-service language teachers recognize that what teachers and students do in the classroom may provide important evidence about student understanding and learning, and these can be described as potential assessments (Ruiz-Primo, 2011). This is actually where the concept of teacher cognition comes on the stage. This study adopts the definition for teacher cognition by Borg (2019) as an “understanding, with reference to the personal, professional, sociocultural and historical dimensions of teachers’ lives, how becoming, being, and developing as a teacher is shaped by (and in turn shapes) what teachers (individually and collectively) think and feel about all aspects of their work” (p. 4). With regard to this, it might be claimed that what pre-service language teachers think, believe, know, and feel will influence what they do in the classroom in terms of formative assessment. More importantly, their classroom practices regarding formative assessment will be a part of their cognition development if supported with reflective practices.

Moreover, in terms of teacher professional development on formative assessment, the literature is predominantly comprised of experimental studies with quantitative comparisons conducted in in-service teacher education context, and the effectiveness of these practices is generally interpreted with increased student achievement (e.g. Andersson & Palm, 2017b, 2018; Brookhart et al., 2008, 2010; Mazzie, 2008; Meisels et al., 2003; Sato et al., 2008; Schneider et al., 2007; William et al., 2004; Yin et al., 2008). Therefore, by investigating student teachers’ construction of formative assessment teacher cognition in L2 context in a qualitative research design with a sociocultural perspective, the current study attempts to bring a new perspective to explore the attainment of formative assessment skills and its implementation. Furthermore, with a discourse analytic perspective conducted on reflective practices between the participant pre-service teachers and the teacher educator, it is also aimed to improve the analytical perspective attached to the mainstream studies on language teacher cognition and formative assessment.

Despite the predominance of a cognitivist perspective in the field of teacher cognition (Golombek & Doran, 2014), some recent studies - although rare in numbers- have started to examine the concept of teacher cognition with a sociocultural perspective (e.g., Johnson, 2006, 2009, 2018; Johnson & Golombek,

2016; Li, 2020; Ngo, 2018; Zheng, 2015). These studies focus on the sociocultural nature of teacher cognition by highlighting the role of context in shaping teacher cognition. However, as Li (2020) stated, the number of studies adopting sociocultural theory while studying teacher cognition is quite rare despite the strong interest in this Vygotskian perspective. According to Kubanyiova and Feryok (2015), although language teacher cognition research has rapidly expanded by enlightening multifaceted structure of language teachers' work, there has been a limited progress in answering two substantial questions: "(1) How do language teachers create meaningful learning environments for their students? (2) How can teacher education and continuing professional development facilitate such learning in language teachers?" (p. 435). While mainstream studies have indicated that unobservable dimension of language teachers' mental and professional lives influences classroom practices by originating from teachers' past language learning experiences, language teacher education experiences and various contexts they work in, inadequate attempts have been made to link teacher cognition to meaningful teacher development and student learning.

By considering this limitation in the cognitivist domain of language teacher cognition and in accordance with the trending participation-oriented view of language teacher cognition scholarship, the present study aims to view formative assessment teacher cognition in L2 teacher education context through the lens of a Vygotskian sociocultural theory. Moreover, it is also aimed to bridge the gap between language teacher cognition related to formative assessment and the broader field of language teacher cognition by adopting sociocultural theory to examine pre-service English language teachers' developments of formative assessment skills in Turkish EFL context. However, the main objective of the sections explaining sociocultural theory will be to clarify the relevance of this perspective to teacher cognition research rather than a comprehensive review of sociocultural theory. This relevance was highlighted by Lantolf and Torne (2006) as they claim that cognition can be systematically investigated in social context with a Vygotskian sociocultural theoretical perspective.

Studying teacher cognition with a sociocultural perspective reinforces the concept of teacher cognition in which teachers construct meaning in social context rather than being individual meaning-makers (Li, 2020). According to Li (*ibid.*),

micro-teaching and the practicum have an important role in supporting pre-service teacher development. These two components of teacher education are the most important means to provide opportunities for reflection to connect theory and practice for pre-service teachers. Therefore, the current provision of teacher education programmes has a crucial role on influencing pre-service teachers' beliefs by offering the appropriate conditions for the experiential link between theory and practice (Borg, 2015; Borg, Birello, Civera & Zanatta, 2014). However, despite the revisited definition of teacher cognition and its reconceptualization in theory, which emphasizes the sociocultural dimension of teacher cognition, how in practice formative assessment teacher cognition is constructed in L2 teacher education context has not been investigated with a sociocultural perspective.

What teachers think, know, and believe may also have a strong impact on their lesson planning, activity and material design, evaluation and assessment of learning, and all decisions made during teaching process (Borg, 2003b; 2015; Li, 2012; 2020; Mangubhai et al., 2004). Although the link between teaching and assessment has been highlighted in prominent studies (e.g. Andersson & Palm, 2017b, 2018; Andrade & Cizek, 2010; Anton, 2015; Black & Wiliam, 1998, 2009, 2018; Davison & Leung, 2009; Rea-Dickins & Gardner, 2000; Ruiz-Primo, 2016; Yan & Cheng, 2015), formative assessment has been neglected compared to the other aspects of testing and assessment. Therefore, the present study scrutinizes the data in terms of both formal formative assessment and informal formative assessment because the data include cases of the former as, for example, suggestions and plans for it occurred during the pre-observation and post-observation conferences. There are also instances of informal formative assessment which were captured through classroom observations, interviews, pre- and post-observation conferences and reflective journals. Therefore, using the term 'formative assessment' overall better encompasses those practices that are carried out as either formal or informal for the purposes of the present study.

An important reason for using a sociocultural perspective to investigate formative assessment teacher cognition in a pre-service teacher education context in the current study is to track the construction process of teacher cognitions. For this, the present study will benefit from different sources like reflective journals, interviews, pre- and post-observation conferences in order to investigate the

trajectory of this process because it is believed that student teachers' re-imagining and reconstruction of pedagogical knowledge is a part of learning-to-teach process and their cognition development. Throughout this process, pre-service teachers explore different ways of constructing pedagogical ideas, and they develop different perspectives into teaching and learning. However, each student teacher follows an individual path to make the change in this transformative process (Li, 2020).

Another gap in the literature is the inadequate number of studies conducting research on the changes in teacher cognition on a longitudinal basis. From a discursive perspective, Li (2017) defined teacher cognition as "teachers' understanding, knowing, positioning, conceptualising and stance-taking that are publicly displayed in action" (p. 176). According to Sert (2015), a longitudinal research design is required to track the changes in this cognition. In such a design, tracking the development in teacher cognition requires an ethnographic approach to the data, including a close analysis of critical self-reflections, lesson plans, feedback received, and critical observation reports along with findings from actual classroom practice (*ibid.*). In line with these suggestions, it can be claimed that there is a need for further research investigating the processes through which change in language teachers' cognitions and practices occur as they gain experience. As Borg (2015) stated, longitudinal investigations on the change in teacher cognition would contribute to the existing literature a lot as the research agenda is limited with comparisons of novice and experienced teachers. When working with a group of student teachers in a teacher education context, a short-term study will not be enough to explore the development and change in teacher cognition. According to Birello (2012), longitudinal research designs are important in understanding teacher learning over a period of time. The process of how language teachers learn to teach and the sources of their cognition and practice are needed to be inquired in detail in terms of teacher cognition (Li, 2017). Accordingly, the present study will try to address the gap in literature with a contribution to teacher cognition and teacher learning research by tracking the construction process of pre-service language teachers' formative assessment teacher cognition in a longitudinal research design in a period of an academic year.

Besides, the studies in language teacher cognition have been mainly conducted in contexts where English is taught as a second language or used as a

first language; few focused on non-native speaking teachers. There is a need to emphasise the importance of understanding the context of teaching English to speakers of other languages by focusing on 'English as a foreign language' settings and non-native English teachers (Borg, 2003b, 2006, 2015; Breen et al., 2001; Li & Walsh, 2011; Li, 2017). The lack of attention to this group may result in a failure to understand and develop EFL teachers from those countries. Therefore, EFL context is the main study area of the current study as language teacher cognition research is still a relatively young domain of inquiry in this context (Borg, 2015, Li, 2017, 2020).

Aim and Significance of the Study

By taking the gaps in the literature into consideration, the present study aims to investigate formative assessment teacher cognition in L2 teacher education context through the lens of a Vygotskian sociocultural theory. Based on this theoretical framework, it aims to reveal the major shifts in the construction process of pre-service language teachers' cognition about formative assessment and the resources that mediated these processes in Turkish EFL context. With this aim, an overview for the socially mediated and dialectical nature of language teacher cognition will be proposed with the analysis of construction of formative assessment skills by paying attention to the social dimensions of language teacher cognition.

Accordingly, the present study aims to provide significant implications for teacher learning by studying teacher cognition. Recent literature presents examples of the importance of investigating teacher cognition and teacher learning together. These studies highlight the effect of past learning experiences, previous coursework, educational background, and sociocultural contexts in influencing pre-service teacher cognition, and how teacher education programmes may have a role in shaping trainee teachers' thoughts, beliefs, and knowledge through reflection (Johnson, 2009; 2018; Kubanyiova, 2012; 2015). For example, Golombek and Doran (2014) urged upon the unification of teacher cognition, emotions, and activity for a significant professional development. Such kind of research in language teacher education is used as a source for both pre-service teacher education and ongoing professional teacher development (Johnson, 2009). At the intersection of teacher cognition, teacher learning, and teacher education, researchers may

provide pre-service and in-service teachers an opportunity to see evidence for their understanding and knowledge (Kubanyiova, 2015).

According to Li (2020), researchers must pay a particular attention to pre-service teacher education as it is the first engagement with teaching profession, and pre-service teacher cognition holds a crucial place in these studies as this field of inquiry provides teacher educators and researchers with an understanding into the effectiveness of pre-service teacher education in terms of teacher knowledge and expertise. Given the importance of pre-service teacher education, this study is dedicated to the beliefs and understandings that pre-service language teachers developed during the practicum, with particular attention to the construction of formative assessment teacher cognition. By using the data from reflective journals, pre-observation conferences, documents, classroom observations, post-observation conferences and interviews, the present study aims to provide insights into pre-service language teachers' thinking, beliefs, knowledge, feelings, and decision-making about classroom practices related to formative assessment with a sociocultural perspective. In order to make the teacher-learning opportunities observable, the current study aims to pay special attention to participants' understandings through interactions and reflective practices in pre-service language teacher education context. These mediating means in a participation-oriented context may create opportunities for transformation of pre-service language teachers. Johnson (2015) emphasized that pre-service language teachers' transformation from external to internal happens out of sustained and prolonged participation in teacher education activities regarding both becoming and being a teacher. By analysing a possible transformative context with the multiple data sources, it is also aimed to provide a possible trajectory of teacher learning of pre-service English language teachers.

Defining the context of the present study as 'teacher education' naturally produced our justification to use sociocultural theory as the theoretical and methodological framework. As mentioned in the previous paragraph, pre-service teacher education has turned out to be a transformative context on which we could apply the principles of Vygotskian sociocultural theory. Teacher education is a bounded context with certain elements like reflective practices, multi-directional and context-bounded interactions (occurred between pre-service teachers, teacher

educators, mentor teachers, etc.), courses, self- and peer-observations, and teaching practices. These constitutions in teacher education context create the natural data collection environment for the researchers who are interested in finding out the developmental zones (e.g. ZPD and IDZ), growth points, mediational tools, cognitive/emotional dissonances, responsive mediation, and transformational development trajectory within the framework of sociocultural theory. Therefore, by investigating formative assessment teacher cognition with a sociocultural perspective, the present study contributes to the scope of the studies regarding teacher education and teacher cognition and keeps pace with the changing research paradigm which celebrates the social turn of teacher cognition studies and realizes the limitations of cognitivist paradigm.

As stated by Brown and Bailey (2008), courses and coursebooks related to testing and assessment generally focus on topics like test construction, analysis of tests, validity, item analysis, etc. In a similar vein, Fulcher (2012) criticized that the needs of classroom teachers are only fulfilled with the abundance of techniques oriented with large-scale standardized testing in the testing textbooks. Besides, the studies conducted on formative assessment are mainly based on the application of standardized testing and assessment with formative purposes (Andersson & Palm, 2017a; Black & Wiliam, 1998, 2018; Fulcher, 2012; Laveault & Allal, 2016). However, it would not be wrong to claim that teachers also need to develop classroom-based assessment skills in addition to preparing and administering tests as a part of their assessment literacy which is “the knowledge of means for assessing what students know and can do, how to interpret the results from these assessments, and how to apply these results to improve student learning and program effectiveness” (Webb, 2002, p. 1). According to research conducted in Turkish EFL context by Hatipoğlu (2015a, 2015b, 2017), teachers need training on classroom-based assessment as they have more problems with this side of the issue than with formal evaluation. Training and consistent support are necessary for the development of formative assessment skills and procedures (Black & Wiliam, 2018; Gardner, 2007; Schneider & Randel, 2010, Stiggins, 2010). Without a particular attention to the development of formative assessment skills in a training process, it would be difficult for prospective teachers to be aware of the opportunities (for increased student learning) that they can use formative assessment during their

teaching practices. According to Turner and Purpura (2016), teachers are responsible to establish an effective learning environment by creating opportunities for formative assessment. These perspectives indicate us the importance of investigating the concepts of teacher cognition and formative assessment together. Therefore, by integrating formative assessment in a teacher-cognition-oriented investigation, one of the aims of the present study is to investigate how pre-service language teachers notice their beliefs, thoughts, and knowledge related to formative assessment and understand their own practice in live contexts. With this aim, the present study holds its significance by providing implications for the betterment of teaching practice and student learning.

Emerged in mainstream education (Black & William, 1998), formative assessment has recently started to be investigated in language education (e.g. Anton, 2015; Davison & Leung, 2009; Rea-Dickins & Gardner, 2000; Rea-Dickins, 2006). It is also embraced as “a part of everyday practice by students, teachers and peers that seeks, reflects upon and responds to information from dialogue, demonstration and observation in ways that enhance ongoing learning” (Klenowski, 2009, p. 264). A good number of studies conducted on formative assessment indicate a positive relationship between the use of formative assessment strategies and student achievement (e.g. Andersson & Palm, 2017b, 2018; Black & William, 1998, 2009, 2018). As the ultimate aim of teaching is student learning, investigating teachers’ cognition related to the development of formative assessment skills may have an important impact on student achievement. Considering this possibility by reviewing the literature, conducting a study in the context of pre-service teacher education may provide important implications for future teacher cognition studies related to formative assessment in the context of both pre- and in-service teacher education by having direct relations with increased teacher learning and student learning. More detailed information about teacher cognition, sociocultural theory, and formative assessment will be provided in the literature review part.

By looking at the above-mentioned aims, it can be claimed that the main goal of the present study is to reach a unifying framework, which may contribute to existing literature and further research in conceptualizing formative assessment teacher cognition with a sociocultural perspective. Providing important information for language teacher education programmes in Turkey by examining the initial

formation of language teacher cognition is an additional purpose of the current study. The results may help to raise awareness about the challenges that are encountered by pre-service English language teachers and provide implications to conduct school experience and practice teaching courses for mentor teachers and course instructors.

How people learn to teach languages is a central question, which is still at the heart of discussion (Borg, 2006, 2015; Çimen, 2017; Li, 2017; Öztürk, 2015). Learning-to-teach process can be very challenging for pre-service language teachers as it requires too much effort from trainee teachers. Besides, Johnson and Golombek (2003) highlighted the importance of sociocultural theory for teacher educators in revealing the cognitive processes in teacher learning. According to Johnson and Golombek (ibid.), these cognitive processes consist of how teaching/teacher concepts develop, how teachers come to know, and how teachers' understandings of their students, of the activities, and of themselves as teachers transform through these internal activities of teaching. Understanding the process they are going through by investigating teacher cognition may reveal important implications for teacher education programmes. The present study investigating pre-service language teachers' cognitions in reference to their formative classroom practice attempts to shed light on the emergence and construction of language teacher cognition from training to practice. Additionally, by focusing on the reasons behind the tension between what pre-service language teachers believe, think, feel, and know and what they do during teaching practice, this study may provide valuable insights for different stakeholders like teacher trainers, teacher educators, mentor teachers, programme development and evaluation specialist, administrators, and Ministry and Higher Education Council authorities.

Research Questions

In line with the objectives and scope stated above, the present study explores the construction of formative assessment teacher cognition in English language teacher education context with a sociocultural perspective. Within the scope of this main aim, this study firstly identifies the factors influencing the construction of pre-service language teachers' formative assessment cognition. By doing this, it also seeks to investigate how the construction of formative assessment teacher cognition

progresses by revealing the major shifts in this process. As a longitudinal case study, the present study also utilizes the principles of Vygotskian sociocultural theory and describes how sociocultural resources mediate formative assessment teacher cognition. In line with these goals, the present study mainly focuses on answering following research questions:

1. What are the factors influencing the construction of pre-service language teachers' formative assessment cognition?
2. How does the construction of formative assessment teacher cognition progress?
3. How do sociocultural resources mediate the construction process of formative assessment teacher cognition?

Limitations

The present study is designed to explore the case of pre-service English language teachers' cognition and practices related to formative assessment and the construction process of this cognition in a certain context. One of the limitations of the study might be related to time and space. By having pre-service English language teachers as participants, the study is limited to the context of the English Language Teaching Department of a state university. In addition, the study is bounded by time, and limited to an academic year, fall and spring terms as a longitudinal study. However, as a qualitative case study research, the exploratory nature of the current work creates an "in-depth description and analysis of a bounded system" (Merriam, 2009, p. 43). With a particularistic feature, "case studies focus on a particular situation, event, program or phenomenon," and this explains the phenomenon of boundedness (ibid.).

Secondly, the sample size which consists of eight pre-service English language teachers might seem like another limitation of the study. However, in qualitative research, what matters is transferability rather than generalizability. According to Mackey and Gass (2005), "for transferability in qualitative research, the research context is seen as integral (...) and the extent to which the findings may be transferred depends on the similarity of the context" (p. 180). A case study strategy does not necessarily allow generalisations to be made, but it does provide

detailed descriptions, which can contribute to our understanding of a language teacher and corresponding teacher cognition about formative assessment, in the present study. When we consider that the participants were selected based on their typicality and representativeness (Yin, 2003), it could be claimed that similar results can be found in other groups of pre-service English language teachers in the practicum processes from different foreign language teacher education departments in Turkey because of the similarities in the context (see chapter for Methodology). Furthermore, Duff (2014) suggested having four to six samples in a case study for doctoral research, which permits multiple ways of reporting the findings (in pairs, as individual cases, according to themes that cut across the samples) and mitigates against possible attrition among participants. Accordingly, the present study with eight participants meets this prior condition stated by Duff (*ibid.*).

As illustrated in the introduction part, there is a bulk of terms in language teacher cognition and formative assessment research since there are different terminologies explaining the same thing. This terminological variability may cause misconceptions and overlapping in the studies based on teacher cognition and formative assessment. Unfortunately, this variability causes the complexity of the construct and the difficulty of investigation. Therefore, the researcher must be careful about using the right terminology in the current work. The study aims to solve this problem by focusing on a composite definition of teacher cognition and formative assessment, which will be stated in the following section for definitions.

While researching teacher cognition and comparing what teachers think and how they behave, we must be careful that exact separation of thinking and behaviours may cause problems since teachers think and act at the same time as active thinkers. It is not proper to treat teachers' thinking and understanding as one act and their actions as another, especially when a sociocultural perspective is adopted. The present study aims to be thorough about this point by using multiple data collection tools in order to reach what pre-service English language teachers think, know, believe, feel and do.

Another critical limitation of the present study is the absence of the classroom interaction analysis, which could have provided a concrete evidence for successful or unsuccessful execution of formative classroom practices conducted by the participant pre-service language teachers. Using an analytical framework like

conversation analysis in explaining the real moments of student understanding evidenced in classroom interaction would provide a stronger emic perspective to support findings for formative assessment practices. Furthermore, video-recordings of these classroom interactions could be used in video-stimulated recall protocols, which could enrich the investigation on teacher cognition. However, in order to compensate for this limitation, the present study firstly triangulated its dataset with multiple sources like interviews, classroom observations, field notes, pre- and post-observation conferences, and reflective journals. Besides, data validity was preserved with thick and in-depth descriptions obtained via classroom observations, field notes, and documents in order to bring transparent descriptions for classroom practices.

Definitions

Teacher cognition. According to Borg (2019), it is an “inquiry which seeks, with reference to their personal, professional, social, cultural and historical contexts, to understand teachers’ minds and emotions and the role these play in the process of becoming, being and developing as a teacher” (p. 20).

Formative assessment. It is a “part of everyday practice by students, teachers and peers that seeks, reflects upon and responds to information from dialogue, demonstration and observation in ways that enhance ongoing learning” (Klenowski, 2009, p. 264).

Black and Wiliam (2009) described formative assessment as follows:

Practice in a classroom is formative to the extent that evidence about student achievement is elicited, interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction that are likely to be better, or better founded, than the decisions they would have taken in the absence of the evidence that was elicited (p. 9).

Pre-service teacher. The present study adopted the term of pre-service teacher as “those engaged in initial teacher education programmes and who typically have no formal language teaching experience” as defined by Borg (2015, pp. 50-51). In order to refer to senior students of ELT departments, ‘pre-service teacher’, ‘trainee teacher’, and ‘student teacher’ terms have been used interchangeably.

Language teacher education. “The sum of various interventions that are used to develop professional knowledge among language teaching practitioners” (Freeman & Johnson, 1998, p. 398).

Classroom practice. Pre-service teachers’ instructional acts during classroom sessions in which they attempt to teach a point or proceed towards it.

Case study. The investigation of “a contemporary phenomenon within its real context when the boundaries between phenomenon and context are not clearly evident and in which multiple sources of evidence are used” (Yin, 1994, p. 23).

Mediation. “The process through which humans deploy culturally constructed artifacts, concepts, and activities to regulate the material world or their own and each other’s social and mental activity” (Lantolf & Thorne, 2006, p. 79).

Responsive mediation. Responsive mediation is the type of mediation, which is emergent, dynamic, and contingent on the interactions between teachers and teacher educators. “In this sense, teachers’ professional development is provoked when they are attempting to accomplish something that they cannot yet accomplish on their own, but they are in fact quite active, in both explicit (i.e., asking for help) and implicit (i.e., expression of negative emotions) ways, in shaping the quality and character of the mediation that emerges during interactions with teacher educators” (Johnson & Golombek, 2016, p. 31).

The zone of proximal development (ZPD). “The distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers” (Vygotsky, 1978, p. 86).

Intermental development zone (IDZ). Mercer (2000) proposed the construct of ‘intermental development zone’ in order to conceptualize how teachers and learners stay attuned to each other’s changing states of knowledge, understanding, and emotions during an educational activity. The concept of IDZ is significant in understanding the role of dialogic interactions in the process of teaching and learning. Mercer (ibid.) positioned IDZ as different from Vygotsky’s zone of proximal development as IDZ offers a more dialogic, negotiated, and emergent view of the dynamics of conceptual development through collective dialogue and engagement in joint activity.

Interthinking. Interthinking, namely ‘thinking together’, is a construct proposed by Mercer (2000) in order to explain the role of language in humans’ joint intellectual activity and how it is used to create shared sense of experience.

Growth point. It is “a moment or series of moments when teachers’ cognitive/emotional dissonance comes into being” (Johnson & Golombek, 2016, p. 45). These growth points are contexts to create conditions for teacher learning and development with responsive mediation.

Obuchenie. Vygotsky (1987) defined the concept of *obuchenie* as “teaching/learning as collaborative interactions governed by a mutuality of purpose” (p. 212). Based on sociocultural theory, the interaction between the teacher educator and the trainee teacher can be conceptualized as a teaching/learning opportunity, namely *obuchenie*.

Perezhivanie. It is defined as ‘lived experiences’ by Vygotsky (1987).

Chapter 2

Literature Review

This chapter will present an overview of the research literature related to the investigated phenomenon, which is about the sources of formative assessment teacher cognition and its construction process. Firstly, the concept of teacher cognition will be defined, and the research on language teacher cognition will be summarized in a timeline with a general perspective by starting with the introduction of the field of teacher cognition to the language teaching studies. Then, the scope of studies related to language teacher cognition will be presented by providing examples from the prominent studies in the field (e.g. Andrews, 2006, 2007; Barnard & Burns, 2012; Basturkmen, 2012; Borg, 2003b, 2006, 2015; Brannan & Bleistein, 2012; Breen et al., 2001; Busch, 2010; Li, 2012, 2014, 2017; Li & Walsh, 2011; Peacock, 2001). Through these studies, different methodologies utilized to investigate language teacher cognition will be identified. The next part will be about the research on the influences that shape language teacher cognition and practices. The development of teacher cognition and the interactive relationship between teacher cognition, classroom practices, and teacher learning will be explained with examples from the existing literature. Under the section for the relationship between language teacher cognition and classroom practices, the present study will compile the studies inquiring whether the cognitions and practices of language teachers correspond to each other and the extent to which they correspond. Lastly, in the light of the studies mentioned throughout the literature review, the concept of pre-service language teacher cognition will be elaborated on by emphasizing the importance of previous language learning experiences and teacher education programmes in the formation of language teacher cognition. Furthermore, the place of teacher cognition in professional development and teacher learning will be addressed with reference to leading studies in Turkish EFL context (e.g. Coşkun & Daloğlu, 2010; Gülден, 2013; Özmen, 2012; Seferoğlu, 2006). After providing a profound literature review for language teacher cognition, the present chapter will explain the relationship between teacher cognition and sociocultural theory to shed light on the changing perspective for teacher cognition studies. This part of the section will elaborate on the sociocultural turn of teacher cognition studies and will briefly summarize Vygotskian sociocultural theory by introducing the core concepts

like mediation and zone of proximal development. Lastly, the literature review part will be extended to the concept of formative assessment while exploring language teacher cognition within the scope of the main aim which is to investigate formative assessment teacher cognition through the lens of a Vygotskian sociocultural theory.

Language Teacher Cognition

With the introduction of cognitive psychology in 1980s, studies on teachers' thought processes started to emerge, and most of the disciplines demonstrated a shift from product-orientedness (behaviour) to process-oriented (thinking) paradigm. In this way, in the field of education, the emphasis of the studies evolved from teaching effectiveness, students' classroom behaviour, and student achievement to teachers' mental lives with a concern for the influence of thinking on behaviour. These developments in teaching paved the way for the start of the studies on teacher cognition. As a component of teacher cognition, the study of teachers' beliefs has flourished as an important and distinctive field of research starting from the mid-1980s. However, studies related to language teacher cognition started to appear in the 1990s with the consolidation in language teaching studies, and continued to develop as an important field of inquiry in 2000s with an increasing attention (Borg, 2003b, 2006, 2015, 2019). Research on teacher cognition started with an aim of portraying cognitive side of teaching so that researchers, policy makers, teacher trainers, curriculum designers, administrators, and teachers can benefit from this field of study. The idea that teacher behaviour is essentially affected and determined by teachers' thought processes founded the bases of research on teacher thinking subsequent to teacher cognition.

Although teacher cognition has been studied as a central concern in the mainstream education, language teacher cognition has been mainly studied more recently (Borg, 2006, 2015, 2019; Barnard & Burns, 2012). With a review of research on language teacher cognition, Borg (2003b) stated the importance of studying teacher cognition in understanding language teachers' mental lives. This point of view was also supported by Li (2017) who emphasized the significance of studying teacher cognition in the comprehension of teachers' decisions, perceptions, the dynamics in the classroom, teaching and learning, learning-to-teach process, and effective pedagogy. Pioneering studies related to language teacher cognition mainly

focused on grammar teaching and literacy instruction by investigating how language teachers' cognition was formed and what factors contributed to the formation of it (see Borg, 2003a, 2003b). Moreover, in recent years, the research has oriented to different areas such as technology integration (Brannan & Bleistein, 2012; Li, 2014), intercultural competence (Llurda & Lasagabaster, 2010; Young & Sachdev, 2011), and social interaction (Li, 2017, 2020). In the light of the studies conducted on language teacher cognition, Borg (2012) included teachers' attitudes, identities, and emotions in teacher cognition as the unobservable dimensions of teaching.

In a review study conducted by Borg (2003b), it was reported that there is a lack of uniformity in terminology among the studies related to language teacher cognition, and this caused a definitional confusion. Likewise, Breen et al. (2001) raised concern about the broad range of terms which are "diverse, sometimes overlapping or distinctive" (p. 472) in studies related to language teacher cognition. To progress in the field, Borg (2015) pointed to the need for a shared understanding of concepts and definitions in a consistent way. The examples for some of the terms which were used in language teacher cognition research are personal practical knowledge - PPK (Golombek, 2009), practical knowledge (Gholami & Husu, 2010; Meijer, Verloop, & Beijard, 1999), theories for practice (Burns, 1996), folklinguistic theories (Warford & Reeves, 2003), teachers' maxims in language teaching (Richards, 1996), knowledge about language - KAL (Bartels, 2009; Borg, 2005), epistemological beliefs (Flores, 2001; England, 2017), concerns and perceptions (Couper, 2017), teacher noticing (Jackson & Cho, 2018), pedagogical thinking (Karimi & Norouzi, 2017), and apprenticeship of observation (Moodie, 2016).

In his methodological analysis of twenty-five contemporary studies, Borg (2012) focused on the need for a greater caution in the selection of participants and providing more detailed information about the data collection and data analysis. In another study, Borg (2015) specified four groups of data collection strategies for language teacher cognition studies: self-report instruments, verbal commentaries, observation, and reflective writing. Previous studies on teacher cognition mainly benefitted from scales to investigate the issue in various socio-cultural contexts and in specific study areas such as in teacher beliefs (Lightbown & Spada, 1993; MacDonald et al., 2001), grammar (Andrews, 2003; Borg & Burns, 2008) and technology uptake (Li, 2008). For example, MacDonald and his colleagues (2001)

investigated the influence of research and theory courses on student teachers' beliefs in a UK university by using a scale, and they concluded that these courses influenced student teachers' key beliefs with certain changes. Likewise, Borg and Burns (2008) developed a questionnaire to examine teachers' beliefs related to grammar integration in reported classroom practices. This questionnaire included fifteen statements about explicit grammar teaching and explicit knowledge, instructional sequences in grammar teaching, inductive and deductive grammar teaching, practicing in grammar, and integrating grammar with other skills in addition to an open-ended question part about the grammar teaching practices of participant teachers. The authors administered their questionnaire in eighteen countries with 176 language teachers and reported that open-ended question part was "the source of the most insightful data in this study" (p. 460). Another questionnaire-based study was conducted by Li (2008) about teachers' beliefs relevant to technology use based on what teachers know, believe, and do. The results of this study revealed teachers' strong beliefs about technology use and their positive attitudes towards technology integration in language teaching. Another data collection tool in this study was focus group interviews, and teachers' reported practice indicated that teachers acted opposite to their beliefs about technology integration because of some contextual factors like school support and professional development.

There are also studies conducted with a qualitative approach by using certain data elicitation methods like interviews, diaries, journals, and repertory grids. For instance, in order to encourage the use of interviews in examining teacher cognition, Borg (2006, 2015) stated that interview is a way for teachers to articulate their cognitions, and through these interviews, researchers can access the cognitive processes in teachers' classroom practices. Likewise, Wyatt (2009) emphasized that researchers can reach the participant teachers' "thoughts, feelings and beliefs" (p. 20) through interviews. For example, Chan (1999) used semi-structured interviews to inquire into twenty student teachers' beliefs about language teaching and learning. The study concluded that environment and culture were the most effective factors influencing teacher beliefs, and it was difficult to change these beliefs. Besides, this study presented that there are two types of teacher beliefs: the ideal and the real. While the ideal beliefs represent a teacher as a facilitator, the real beliefs reflect the actual teaching environment encircled by large classroom sizes,

intense teaching programme, and washback effects of the exams. In this sense, it can be claimed that interviews created a new perspective of teacher cognition by revealing the influence of context. Metaphor analysis is another enriching investigation technique to understand the hidden side of the teachers' mental lives. With a metaphor analysis, McGrath (2006) worked on language teachers' conceptions about the course books. In a similar study, Seferoğlu, Korkmazgil, and Ölçü (2009) compared pre-service and in-service language teachers' images of being a teacher, and they found differences based on the experience gained by the participants.

Studies indicate that teacher cognition has an effect on how teachers perceive and judge teaching and learning, which leads to different behaviour in classrooms (Borg, 2006, 2015; Li & Walsh, 2011). In other words, teacher cognition affects how teachers plan their lessons, how they make decisions during classroom practice, and how they promote learning in the classroom (Li, 2012, 2017; Pajares, 1992). These studies also indicate that there is a relationship between teachers' beliefs, knowledge, and understanding and their instructional decisions (Borg, 2003b, 2006, 2015; Mangubhai et al., 2004).

Previous studies indicate that research related to teacher cognition has a significant role in understanding teaching, learning, classroom dynamics, pedagogy, and teacher development (Li, 2017). It is important to study teacher cognition to understand the dynamics of the teaching environment because, according to Speer (2005), teacher cognition shapes teachers' decision about what to teach, what goals to achieve, what knowledge is relevant, which teaching routine to follow, and what are the important aspects of the contextual factors in the classroom.

In teacher cognition literature, the term of 'teachers' belief' is frequently used to refer to teacher cognition. Therefore, teacher cognition research paid a special attention to the study area of teacher beliefs. Above-mentioned studies indicate that teachers' understanding of classroom pedagogy is mostly influenced by teachers' beliefs about teaching and learning. Studies related to teacher beliefs have concentrated on beliefs about learners and learning, teaching, subject, self, and the teaching role (Öztürk, 2014). The literature includes studies about the changes in teachers' beliefs (Mattheoudakis, 2007; Peacock, 2001), beliefs about specific subject areas like grammar teaching and literacy (Andrews, 2006, 2007; Svalberg

& Askham, 2014), the influence of beliefs on teachers' classroom practices (Basturkmen, 2012; Breen et al., 2001), the match between learner and teacher beliefs (Cohen & Fass, 2001; Peacock, 1999), and the effects of beliefs on pre-service and in-service teacher education programmes (Busch, 2010).

Ball and his colleagues (2001) pointed out that interactive decisions made by teachers during classroom practice and the nature of teacher instruction cannot be explained based solely on teacher knowledge because teacher beliefs together with teacher knowledge constitute teacher actions. Therefore, studies argue that there is no point in distinguishing teacher beliefs from teacher knowledge (Borg 2003, 2006, 2015). Likewise, Verloop and co-authors (2001) emphasized that it is impossible to make a definite distinction between beliefs and knowledge as they state "in the mind of the teacher, components of knowledge, beliefs, conceptions, and intuitions are inextricably intertwined" (p. 446).

The interest in studies on teacher knowledge in the field of teacher education was ignited in 1980s (e.g. Clark & Peterson, 1986; Connelly et al., 1997), and it gathered attention in 1990s in the field of language teacher education. As an important aspect of teachers' professional life, teacher knowledge is a fundamental factor in teaching, so investigating knowledge is a valuable means of advancement in teacher education (Ben-Peretz, 2011). At a very broad level, the term teacher knowledge is used as an umbrella term to cover teachers' theoretical and practical knowledge (Li, 2017). The focal points of the studies started with content and pedagogical knowledge and oriented to teachers' personal and practical knowledge. According to Munby and co-researchers (2001), studies have inclined towards the view that teachers construct knowledge based on their personal experiences, which are different from formal professional knowledge. Practical knowledge is based on teachers' school and classroom experiences and teachers' handling of problems arising in these contexts (Elbaz, 1981). Therefore, in order to investigate teachers' personal practical knowledge, studies should focus on teachers' professional and personal experiences by applying extended classroom observations and teachers' narratives of experiences (Tsui, 2007; Xu & Connelly, 2009). Johnson and Golombek (2002) described practical knowledge as "evolving, changing, and growing" (p. 8). Language teachers' knowledge was categorized into four: knowledge of self, knowledge of subject matter, knowledge of instruction, and

knowledge of contexts by Golombek (1998). However, these categories may overlap, and some studies have indicated that personal practical knowledge and beliefs are used interchangeably (Li, 2017). In a study conducted by Sun (2012), the observations revealed that teachers' personal practical knowledge and teaching practice are strongly influenced by immigrant Chinese language teachers' cultural heritage. In this study, Sun (ibid.) also found a relationship between personal practical knowledge and identity, which has a similar result with the study carried out by Clandinin and his colleagues (2009). In another study, Tsang (2004) worked with student teachers to explore their practical knowledge growth and reported that student teachers' interactive decisions were not always influenced by their personal practical knowledge, but this type of knowledge was effective in determining post-active decisions. Wyatt (2009) investigated the interrelationship between content/pedagogical knowledge and personal practical knowledge and concluded that formal instruction has an influence on the teachers' personal practical knowledge development. In a longitudinal research design, Ruohotie-Lyhty (2011) conducted a discourse study to find out teachers' personal practical knowledge and pointed out that teachers' perception of their environment is a significant factor in the development of knowledge. In another prominent study, Morton and Gray (2010) examined student teachers' practical knowledge development in lesson planning sessions with the instructor. With a discursive approach, he used these sessions for joint meaning construction to create opportunities for student teachers so that they can develop their practical knowledge through their learning experiences and background knowledge.

The Factors that Shape Language Teacher Cognition

Educational research has focused on the influences of different entities on teachers' beliefs, thought processes, and knowledge since teacher cognition research gained popularity. Borg (2003b) defined teacher cognition as "the unobservable cognitive dimension of teaching – what teachers, know, believe, and think." Based on the reflections from his reviews on language teacher cognition, Borg (ibid.) concluded that teachers' cognitions and their instructional practices are shaped by various interacting and conflicting factors. Drawing upon the idea that there is a lack of unifying and programmatic research agenda in the field of language

teacher cognition, Borg (2006, 2015) formed a framework, which illustrates how teacher cognition develops and the interactive relationship between teacher cognition, classroom practices, and teacher learning. In this model, he demonstrated the influences that shape teachers' lives by putting teacher cognition at the centre of teaching and by presenting its relationship with significant factors like schooling experience, professional development, classroom teaching, and specific contexts. According to this model, certain constructs like beliefs, knowledge, theories, assumptions, images, metaphors, conceptions, and perspectives constitute teacher cognition about teaching, teachers, learning, students, subject matter, curricula, materials, instructional activities, and self. In this sense, teacher cognition is used as a collective term for these various constructs. With a two-way relationship, teacher cognition and classroom practice, and teacher cognition and professional coursework influence each other. On the other hand, contextual factors influence both teacher cognition and classroom practice as context is a predictive factor affecting actions, thoughts, and beliefs. Lastly, schooling has an impact on teacher cognition and professional coursework with a filtering effect on these constructs as early cognitions developed through previous schooling shape newly introduced knowledge in the teacher education programme. This schematic model illustrates that cognitions are informed and developed by teachers' experiences as learners. While these cognitions affect teachers' classroom practices, they are also shaped by the contextual factors. In this process, it cannot be denied that personal experience has a significant role in the development of preconceptions about education. In this model, interaction between teacher cognition and contextual factors shape classroom practice as it was concluded by Borg (2003b) that contextual factors mediate both teacher cognitions and practices, and in this way, teachers can implement instruction congruent with their cognitions.

According to Li (2017), Borg's model is crucial in understanding language teacher cognition, and it suggests investigating teacher learning and contextual factors to study teacher cognition. It is important to understand the influence of teacher cognition on teacher learning, and the divergence (caused by contextual factors) between teacher cognition and classroom practice. Borg (2015) argued that professional preparation has a significant role in shaping pre-service language

teachers' cognitions, and if teacher education programmes ignore student teachers' prior beliefs, these programmes' influence on teacher cognition decreases. In accordance with Borg's model, Farrell (2008) stated that previous schooling leads to long hours of observing the teachers and developing images, and it shapes teacher cognition, so he remarked on that learning-to-teach is a complex process and is influenced by certain elements like first year socialization into an established school culture. Likewise, in a longitudinal study, Urmston (2003) investigated the influences that shape teacher beliefs and knowledge, and found out that teachers' own experiences as students and the time they spent in practicum are effective factors shaping teacher cognition.

Relationship between Language Teacher Cognition and Classroom Practices

Related literature investigating the relationship between teacher cognition and classroom practices provides evidence for various interacting but sometimes conflicting factors, which shape teachers' classroom practices (Cundale, 2001; Borg, 2003, 2006, 2015). These studies focus on teachers' classroom practices in terms of decision-making, planning, and practical knowledge and exhibit frameworks which conceptualize the relationship between classroom practices and teacher cognition. Teachers' practices while planning lessons, giving instructions, and interacting with students are significantly shaped by teachers' knowledge and beliefs (Richards & Lockhart, 1994). Woods (2003) provided evidence for the consistency between underlying assumptions (about language, learning, and teaching) and the decisions made in planning and teaching action. However, there are also studies with different perspectives regarding the discrepancies, inconsistencies, and mismatches between teacher cognition and their classroom practices, and these studies (e.g. Basturkmen et al., 2004; Li, 2012; Li & Walsh, 2011; Orafi & Borg, 2009) present the obvious disagreement regarding the precise relationship between stated and enacted teacher beliefs.

For Foss and Kleinsasser (1996), there is a "symbiotic relationship" (p. 441) between pre-service teachers' thinking and their instructional practices. Likewise, Breen and his colleagues (2001) defined the relationship between cognitions and practices as interactive as two constructs influence each other because teachers test out what they do in the classroom and its reflection on their cognitions. With a

different perspective, Borg (2006, 2015) described the relationship between cognition and practice as “neither linear nor unidirectional” (p. 275) and added that researchers should include the contextual factors in the equation because an isolated examination of the interrelationship between cognition and actions may lead to superficial interpretations.

Research on the relationship between teacher beliefs and classroom practices depicts the salient effect of teacher beliefs on teachers’ pedagogical practice (e.g. Ng & Farrell, 2003; Mangubhai et al., 2004), their instructional decisions during classroom practices (e.g. Tillema, 2000), and uptake of new teaching methodologies (Donaghue, 2003). Li (2013) defined the relationship between beliefs and practice as highly complex as teachers’ beliefs constitute different dimensions like learners, curriculum, teaching and learning, professional development and self. These are intertwined and cannot be considered separately from classroom practice (Li, 2008).

In a review study, Basturkmen (2012) examined the studies investigating the correspondence between teachers’ stated beliefs and their classroom practices by reporting that factors like context, teacher experience, and planning affect the way teachers teach. She specifically focused on the studies researching the question of why teacher beliefs and practices did not necessarily correspond and concluded that the role played by situational constraints, a possible change process in teachers’ beliefs, and the existence of multiple belief systems may cause the inconsistencies between beliefs and practices. The study also revealed that there were differences between the experienced teachers and less experienced teachers in terms of the congruence between beliefs and practices as experienced teachers displayed more consistent teaching behaviours. As a result of the investigation, it was suggested that pre-service teachers’ beliefs may still be in the forming process and less experienced teachers may be undergoing a change process that is not yet reflected in practice.

Contextual factors -social, cultural, and institutional- are recognised as the most influential factors that cause discrepancy between teacher cognition and classroom practice (Burns & Knox, 2005; Li, 2008). Students with their learning styles, preferences, and linguistic levels (Li, 2017) and years of teaching experience (Tsui, 2003; Gatbonton, 2008) are among the most important contextual factors that

affect teachers' actions in classrooms. Davis (2003) listed school, immediate classroom environment, and school culture with its norms and values among the influential contextual factors. Contextual factors guide not only what teachers teach but also how they teach (Sato & Kleinsasser, 2004).

In a nine-month data collection process, Erkmen (2014) worked with novice Turkish EFL teachers to investigate their beliefs about teaching and learning, and their relationship with classroom practices by using semi-structured interviews, classroom observations, and post-lesson reflection forms. The study reported that teachers' classroom practices were not always congruent with what they believe because of students' needs and expectations. Furthermore, teachers' previous experiences as language learners shaped the formation of teacher beliefs and instructional practices. It was also found out that teachers tried to form consistency between their beliefs and practices when they became aware of the incongruence between these two. As a conclusion, the researcher called for further research that will explore teachers' beliefs and practices in relation to other variables such as contextual opportunities and constraints, school culture and collegiality.

Flores (2001) conducted an exploratory survey study with 176 bilingual teachers and explored that each teacher behaviour was carried out with an espoused belief behind it. It was also reported that participant teachers formed their epistemological beliefs based on their professional experiences and past experiences gained through teacher education programme. According to Ng and Farrell (2003), what teachers believe governs what they do in their classrooms whereas Williams and Burden (1997) speculated that everything in classrooms is affected by what and how teachers think with the claim that teachers' beliefs about how languages are learned and taught are more influential on their classroom behaviours than any methodology or coursebook they adopt and follow. The study conducted by Breen and colleagues (2001) made a significant contribution to the research area related to teacher cognition and classroom practices. In this study, the authors conducted classroom observations, interviews, and elicitation procedures by means of which 18 ESL teachers reflected on their instructional practices in relation to their underlying beliefs about language teaching and learning. The study yielded that classroom practice is the only means whereby the teachers can convey their principles into action. Based on their findings, the authors

concluded that despite individual paths in enacting teaching roles, teachers displayed a consistency between their thoughts and instructional practices in language classes.

Some studies have focused on the reasons behind the departures from lesson plans as teachers' decision-making process in order to investigate the inconsistencies between what teachers believe and what they do in classroom environment. For example, Bailey (2006) worked with ESL teachers with different levels of experiences to explore the reasons behind their departures from lesson plans by collecting data through lesson plans, classroom observation, and interviews. The results indicated that teachers act inharmoniously with their lesson plans with the pedagogical aim of the moment to serve the common good and to promote student learning. Likewise, Öztürk's (2014) study examined the sources of teachers' cognitive and behavioural development with 606 EFL instructors teaching in higher education institutions through an inventory titled EFL Instructors' Cognitions and Actions Inventory. It also investigated the patterns of connections between EFL instructors' cognitions and classroom practices. Inferential analyses indicated that factors like age, teaching experience, and academic background caused differences between participants' cognitions and actions. Moreover, it was concluded that EFL instructors practice traditional pedagogy and diverge from communicative ways of teaching in planning and error correction if they believe in the importance of competence-oriented approach and an executive learner profile. In another similar study, Phipps and Borg (2009) examined three language teachers' beliefs in teaching grammar and their practices, and it was revealed that these two were not always aligned as tensions were observed in inductive and contextualized presentation of grammar, meaningful practice and group work. The authors put forward the factors leading to tensions and identified these factors as classroom management, student preferences and expectations. In the same vein, Ogan-Bekiroğlu and Akkoç (2009) stated that pre-service teachers exhibited incongruence between their beliefs and practices because of their transitional beliefs formed both with constructivist and traditional perspectives.

Abovementioned studies search into the details of the relationship between teacher cognition and classroom practices. The concept of teacher cognition in these studies generally covers the aspect of teacher beliefs; however, teacher

cognition also contains another component: teacher knowledge which is investigated by some studies regarding the relationship between teacher knowledge and classroom practices. For example, by conducting a case study in a three-month period, Arıoğul (2006) investigated three EFL teachers' practical knowledge and classroom practices through classroom observations, stimulated-recall interviews, interviews, field notes, and curriculum documents. The author categorized the components of participant teachers' practical knowledge as general pedagogical knowledge, subject specific knowledge, content knowledge, and knowledge of self, which were in line with Elbaz's (1981) model of practical knowledge. The study yielded that teachers' knowledge was shaped through personal and professional experiences, which are built through classroom practices. Likewise, Chou (2003) examined the personal practical knowledge of three EFL teachers in Taiwanese context and confirmed the idea that teachers' experiences as teachers shape their practical knowledge.

Üstünel (2008) investigated pre-service teachers' views about dealing with large classes, creating a positive classroom environment for young learners, and attracting and holding young learners' attention regarding the effects of these views on their classroom practices. The data were collected through questionnaires, tutor logs, discussions, and classroom observations in a longitudinal research design. The analyses indicated that the trainee teachers could not implement all their views in instructional practices, but the author concluded that trainee teachers' views were better reflected in instructional practices when they had more teaching experience. The study conducted by Dikilitaş (2013) investigated the influence of in-service teacher education programmes on teachers' beliefs and classroom practices. By collecting data through pre- and post-course observations and interviews, the author aimed to display the effects of training on both practical and cognitive levels. The study yielded that teacher education programmes must be designed with pre- and post-monitoring activities and must be supported with follow-up activities to attune teacher beliefs and classroom practices. In a similar study, Ortaçtepe and Akyel (2015) examined the impact of an in-service training course on teachers' self-efficacy and instructional practice regarding the implementation of communicative language teaching method. In this study, the authors focused on the extent of the congruence between observed teaching practice and teachers' self-reported

practices and beliefs. The results indicated that awareness-raising on teachers' professional development contributed to the development of teacher beliefs and their classroom practices. In another study, by using various data collection tools, Tsang (2004) investigated the place of personal practical knowledge in three pre-service ESL teachers' instructional practices. The main focus of the study was on the application of teacher knowledge during interactive decision-making process. The results demonstrated that participant teachers could not completely utilize their personal practical knowledge during classroom teaching. Making pre-service teachers aware of this limited use of practical knowledge may contribute to post teaching decisions, and this may lead teacher self-evaluation and improved future planning.

Pre-service Language Teacher Cognition

Abovementioned literature provides instances of teacher cognition studies conducted in the context of pre-service teacher education. Without repeating the same issues, it is aimed to emphasize the importance of researching pre-service teacher cognition in this section of the literature review.

After English has been recognized with the status of lingua franca in the globalized world, teaching and learning this language have become one of the core requirements of our era. Accordingly, raising effective English language teachers has become the common goal of teacher education institutions. Studies conducted in the field of teacher cognition have contributed a lot to teacher education and its development by providing useful insights and implications. According to Richards (2008), teacher cognition research is considered a significant component for the development of teacher education programmes. Studies on pre-service teacher cognition have generally focused on the stability of 'teacher cognition' concept and the influence of teacher education on the development of teacher cognition (Li, 2017). Borg (2015) categorized the studies on pre-service teacher cognition thematically: (1) trainees' prior learning experiences and cognitions, (2) trainees' beliefs about language teaching, (3) trainees' decision-making, beliefs, and knowledge during the practicum, and (4) change in trainees' cognitions during teacher education. However, Borg (2009, 2015) signified that there are many aspects of pre-service teacher cognition like the process of language teachers'

cognitive change to be explored, and Wright (2010) emphasized the need for research on pre-service teachers' learning in formal teacher education.

Relevant studies indicate that pre-service teachers bring relatively established pedagogical beliefs to their professional learning, and past learning experiences constitute the origins of these beliefs (Li, 2017). Some studies display the ineffectiveness of teacher education on teacher cognition by positioning these programmes as weak interventions. For example, Peacock (2001) reported that pre-service teachers' beliefs did not change during teacher training. Similarly, Borg (2005) noted little change in teachers' beliefs throughout a CELTA course. According to Li (2017), a great number of studies investigating the impact of teacher education on teacher cognition benefitted largely from an instrument called Beliefs about Language Learning Inventory (Horwitz, 1985) to explore the change in teacher beliefs without providing evidence from classroom or interview data. Moreover, the number of longitudinal studies on pre-service teacher education is limited, and Li (2012) contributed to this study area a lot by utilizing a case study approach to investigate two student teachers' belief construction and development throughout a year. Li's study adopted various data collection methods like semi-structured interviews, observation of micro-teaching sessions and written reflections on teaching practices in order to explore the development of participant trainee teachers' understanding, beliefs, perceptions, and practices. Through data analysis, five dimensions –subject matter, learning, teaching, learners, and the teacher- of belief system were described. Li's (ibid.) results yielded that teacher education (particularly courses, teacher educators, and practicum) has a powerful impact on pre-service language teacher development.

In order to understand the impact of teacher education programmes on pre-service teachers' teacher cognition development, researchers need to query pre-service teachers' evaluation of their teacher education programme and the contribution of these programmes to their teaching skills. Accordingly, Seferoğlu (2006) collected reflection reports about the methodology and practice components of a pre-service English teacher training programme in Turkey. Following a qualitative case study method, the analysis revealed participants' concerns about the lack of connection between what they learn in the courses and the practical implications in real classrooms by signifying the insufficiency in providing

opportunities for micro-teaching and practice teaching. In another prominent study, Coşkun and Daloğlu (2010) applied Peacock's (2009) programme evaluation model in a Turkish higher education context to evaluate the existing pre-service language teacher education programme from faculty members' and pre-service teachers' perspectives. The aim was to reveal the components of the programmes and to draw attention to the importance of programme evaluation for teacher education programmes. The data were collected through questionnaires and interviews, and analysis revealed both similarities and differences between the views of participant teachers (faculty members) and student teachers regarding the components of the programme. The study concluded that the pedagogical components of the programme need improvement as the opportunities for teaching practice are not adequate. Likewise, Özmen's (2012) paper explored student teachers' beliefs about language learning and teaching throughout a teacher education programme in a longitudinal research design. The study concluded that courses in teacher education have a significant role in shaping student teachers' beliefs and practices.

With a specific focus on pre-service language teacher cognition, this chapter aimed to compile the studies examining how teacher cognition is formed, what factors contributed to its formation, how teacher cognition is shaped by previous language learning experiences, teacher education, and contextual factors, and the relationship between teacher cognition and classroom practices. These studies were tried to be presented by illustrating the change in perceptions and methodological perspectives while investigating language teacher cognition. This comprehensive literature review indicates that teacher cognition research is an indispensable part of the field of language teacher education. To be aware of pre-service teachers' cognitions and most importantly to make them aware of their own cognitions is vital for teacher educators and clearly for the effectiveness of teacher education programmes (Donaghue, 2003; Farrell, 2006). Related literature includes various studies investigating teacher cognition from specific perspectives like pedagogical components, classroom practices, contextual factors, etc. Since these elements are examined separately in these studies, it can be claimed that there is a need for a study with a unifying purpose to present a better understanding of teacher cognition and its relation to other constructs. Another important point deduced from the literature review is the scarcity of studies focusing on pre-service

teacher cognition in Turkish EFL context. The ones conducted so far generally focus on the teaching and learning beliefs of pre-service teachers. With these considerations in mind, the current study aims to present a unifying research perspective on pre-service language teacher cognition regarding formative assessment and contribute to the field of language teacher education by broadening the understanding of pre-service language teacher cognition concept in Turkish EFL context.

Sociocultural Turn of Teacher Cognition

Despite the wide range of studies in the field of language teacher cognition, the epistemological and conceptual foundations of the domain have largely gathered around the cognitivist paradigm that separates teachers' beliefs from their practices by representing the individualist approach of language teacher cognition literature (Burns, Freeman, & Edwards, 2015; Kubanyiova & Feryok, 2015; Ngo, 2018). However, latest studies suggest embracing the phenomenon in a larger vision with a shift towards the socially embedded nature of teacher cognition (e.g. Burns, Freeman, & Edwards, 2015; Ngo, 2018; Li, 2017, 2020). For example, Golombek and Doran (2014) remarked on the absence of affective aspect of teachers' professional lives in teacher cognition studies, which mainly focus on the cognitive aspects of teachers' understanding and thinking. By integrating teacher emotion into teacher cognition, they also investigated "what teachers feel about what they think, know, believe, and do" (p. 103). Recent literature represents an increasing number of studies that takes a sociocultural perspective to examine and conceive teacher cognition within the context of teacher education (e.g. Edwards, Gilroy, & Hartley, 2002; Ellis, Edwards, & Smagorinsky, 2010; Feryok, 2012; Johnson, 2009; Johnson & Golombek, 2011, 2016; Smagorinsky, Cook, & Johnson, 2003), and prominent studies in the field point out the value of examining and explaining language teacher cognition with a sociocultural perspective (e.g. Cross, 2010; Golombek & Doran, 2014; Johnson, 2009a; Johnson & Golombek, 2002). Li (2020) also offered a sociocultural perspective to understand teacher cognition. In this view of cognition, teacher cognition is social and shaped by sociocultural factors, and cognition cannot be separated from language, interaction, and context.

Social constructivism pioneered by the works of Vygotsky (1978, 1986) is built on the idea that social context, language, and cultural history together have a significant place in an individual's development (Narayan et al., 2013). This theoretical framework has developed with the contribution of prominent studies, and now it is broadly termed as sociocultural perspective (Lave & Wenger, 1991; Rogoff, 1993; Wertsch, 1991). Vygotskian sociocultural theory indicates that the origin of knowledge construction should be sought in the social interaction co-constructed between a more and a less knowledgeable individual (Lantolf & Poehner, 2008).

By emphasizing the place of context in shaping teachers' cognition, some studies argue that teacher cognition is sociocultural in nature (e.g., Johnson, 2006, 2009a; Zheng, 2015; Li, 2020). Although there is an increasing interest in sociocultural theory, the number of studies taking up a sociocultural perspective to study teacher cognition is quite limited (Li, 2020). Lantolf and Torne (2006) highlighted the significance of sociocultural theory in studying cognition.

Sociocultural theory places its foundations on the relationship between thought and language. With an emphasis on "the impact of culturally organized and socially enacted meanings on the formation and functioning of mental activity" (Lantolf & Torne, 2006, p. 2), social interaction has a significant role in the development of cognition. According to Vygotsky (1978, 1986), learning happens at two levels. It first occurs through interaction with others, and then the individual internalizes it by integrating with his/her own cognitive structure. Language plays a fundamental role at this point of interaction and internalization in Vygotskian sociocultural theory (Lantolf & Torne, 2006). Because of the strong relationship between human development and social interaction, language has an important role in the organisation of higher psychological functions in a dialectical unity (van Compernelle, 2015).

According to Li (2017), teacher cognition and teacher talk share a strong relationship as teachers' beliefs and thoughts are displayed in their professional discourse. Teachers' professional discourse reflects their cognition about teaching and learning. Therefore, in order to facilitate both teacher learning and student learning, teacher cognition and teacher discourse must be examined together. In line with this, Richards (2008) put forward that trainee teachers form and experience

various representations of themselves as teacher learners through dialogue in teacher education.

Cognition develops through interaction first at the interpersonal level and then it happens at the intrapersonal level. By highlighting the relationship between social interaction and cognition, Lantolf and Johnson (2007) stated the importance of social activity as a process through which cognition is shaped. In terms of the social activity, cultural norms and practice are effective factors in shaping cognition. Sun's (2012) study presented cultural environment as a strong influencer on shaping teacher knowledge and practice. Likewise, social interaction developed through professional context was another factor shaping knowledge and understanding. For instance, Morton and Gray (2010) clearly demonstrated that lesson planning sessions conducted between the teacher educator and the trainee teachers created space for joint meaning construction as these discursive practices allowed trainee teachers to both externalize and internalize their practical knowledge.

Johnson (2009a) focused on the social turn of teacher education by describing the process as how teachers know what they know, how teacher cognition develops over time, and how teacher learning transforms them and their teaching activities. Previous literature represents significant examples for the lack of lasting impact of teacher education programmes as teachers continue teaching in the way they were taught (Ball & Forzani, 2010; Edwards & D'Arcy, 2004; Kennedy, 2008). Therefore, developing as a language teacher requires sustained and prolonged participation in the social practices of teacher education (Johnson & Golombek, 2016). Vygotsky's conceptualization of the development of human cognition is inherently social and "emerges out of participation in external forms of social interaction that become internalized psychological tools for thinking (internalization)" (Johnson & Golombek, 2016, p. 4). The transformation from external (*interpsychological*) to internal (*intrapsychological*) is mediated. In this sense, dialogic interactions taking place in second language teacher education, between trainee teachers and teacher educators or between peers, can be counted as the external forms of social interaction. With teacher education, it must be aimed that those external tools will be internalized and transformed into psychological tools for teacher thinking, which, at the end, may empower prospective teachers to construct and enact teaching practices sound in theory and pedagogy. In this

transformative perspective, experiences as language learners, teacher education process, and the contextual factors are the means shaping L2 teachers' instructional practices (Johnson & Golombek, 2016).

In sociocultural theory, there are key concepts like mediation and zone of proximal development (ZPD), which are relevant to teacher cognition research, and these concepts will be explained in the upcoming sections.

Mediation. According to Vygotskian sociocultural perspective, human development is a product of social relations and cooperation (Vygotsky, 1999). Therefore, the concept of mediation is a cornerstone in sociocultural theory. It can be defined as “the process through which humans deploy culturally constructed artifacts, concepts, and activities to regulate the material world or their own and each other’s social and mental activity” (Lantolf & Thorne, 2006, p. 79).

The role of mediating resources both physical and psychological are significant in this concept. The fundamental reasoning in Vygotskian sociocultural theory is that culturally constructed artifacts such as language and concrete materials mediate learning and an individual’s higher forms of mental activity. In a teaching and learning environment, mediational tools can be language, materials, technological tools and any products produced in this environment. Artifacts can be symbolic, such as language, as well as concrete, such as the physical object of a lesson plan of a teacher teaching. For a teacher, physical and social mediation of a lesson plan interact because artifacts are constitutive of the activity rather than only being incorporated into (Lantolf & Thorne, 2006).

Johnson (2009) and Johnson and Golombek (2011) used the term of ‘mediational tools’ as an umbrella term or as synonymous with mediation resources or means which they further categorized into cultural artefacts, social relations, and concepts. Johnson (2009) defined ‘concepts’ as “not fixed objects but develop dynamically through use, so they are learned over time and formed through the processes of synthesis and analysis, while moving repeatedly between engagement in activity and abstract reasoning” (p. 20). Vygotsky (1963) classified concepts into everyday concepts and scientific/academic concepts. When we place this classification in language teacher education, ‘everyday concepts’ are the views originating from teachers’ learning and teaching experiences while ‘academic

concepts' are based on "theoretical investigation of a specific domain", which create a potential to mediate the development of teacher cognition. This development of teacher cognition is managed by helping teachers get out of the limitations caused by everyday concepts and experience a divergence of alternative contexts and circumstances (Johnson, 2009). According to Lantolf and Thorne (2006), human agency takes place only when the individual can integrate the concepts into his or her material and mental activity.

Apart from cultural artifacts and concepts, mediation can occur through social relations and can be provided by other individuals, both experts and novices. According to Rogoff (1995), mediation may take place in the form of apprenticeship guided by participation and in interaction with other individuals. In this type of mediation, individuals' prior experience of a situation helps them to handle and change a later situation, a concept which Rogoff (ibid.) referred to as 'participatory appropriation' (p.142).

By highlighting the importance of explicit mediation, van Compernelle (2015) stated that explicit mediation happens when an individual's behaviour is directed by the presence of another person who intentionally introduces overt forms of mediation into the course of action. In his study, Compernelle (ibid.) illustrated an example of a child completing a jigsaw puzzle with the assistance of a parent who directs the child's attention to the whole image and asks questions. van Compernelle (ibid.) explained that intentional introduction of the completed puzzle image provides the clue for problem solution, and this may mediate the child's performance. Similarly, language is a symbolic and psychological tool through which the teacher or the teacher educator can use interactional resources like simplification and paraphrasing, and artefacts like pictures and objects are other mediational means which can assist language in a classroom or teacher training setting.

Zone of proximal development (ZPD). ZPD is one of the most important concepts of sociocultural theory in understanding learning. It is defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). In ZPD, where the development of higher psychological functions happens, individuals get scaffolded assistance. According to Vygotsky

(1978), learning occurs through interaction first on the social level (between people, *inter-psychological*), and then on the individual level (inside the individual, *intra-psychological*). In order to capture the development of individual or group learning and mediation to occur, one must investigate ZPD where learning and development come together.

As a space for learner potentiality, ZPD is strongly connected to the individual's relation to the environment. The transformation of mental processes takes place in "qualitative rather than quantitative increments" (Wertsch, 2007, p. 179). Vygotsky (1988) explained the foundations of qualitative change through the concept of 'the social situation of development', which "represents the initial moment for all dynamic changes that occur in development during the given period" (p. 198). Based on the notions of the social situation development and the critical periods, the development of higher mental processes is mediated, and it begins as an assisted activity in which a caregiver externalizes the tool for the child, then the child starts using the psychological tool independently. This distance between the learner's level of independent performance and the level of assisted performance is called as the 'zone of proximal development (ZPD)' in Vygotskian sociocultural theory.

From a Vygotskian perspective, the critical period is where the contradictions occur about the things the child can actually do, the affective needs of the child, and the child's emerging mental formations. Characterized by the critical periods initiated by contradictions, human development goes through various stages as indicated by Vygotskian sociocultural theory. Johnson and Golombek (2016) proposed L2 teacher education programmes as one of these critical periods in teachers' professional development.

According to Aljaafreh and Lantolf (1994), with the "graduated, contingent, and dialogic assistance" (p. 495), learning takes place within the learners' ZPD. Accordingly, Golombek and Doran (2014) highlighted the importance of the concept of ZPD in teacher learning by explaining that it is "the difference between the level of development already obtained and the level of potential development made possible through mediation by more expert others" (p. 104). According to Li (2020), identifying ZPD and growth points in teacher education programmes is an essential

step for further research to understand teacher cognition and teacher learning in teacher education.

Vygotsky (1987) exemplified the strategies that more expert-others can mediate learner activity in ZPD as leading questions, demonstration, and introduction of the key elements in a task solution. In Vygotsky's perspective, the expert needs to show how to solve a problem, then she/he needs to observe whether the learner manages to solve the problem by imitating the expert. When the learner starts to solve the problem on her/his own, it means that the mediation has enabled the learner to solve the problem through interaction with a more capable other who explains the principle underlying the problem (Vygotsky, 1988). However, based on the principles of mediation and ZPD, prominent studies conducted with a sociocultural perspective argue that identifying exemplary mediational patterns is not enough for successful educational implementations. What needs to be done is to facilitate whether the learner is capable of taking part in the activity which could not be managed without assistance and whether this social interaction turns into a psychological tool internalised/appropriated by the learner (Kozulin, 2003).

Since the main aim of the present study is to investigate the construction of formative assessment teacher cognition with a sociocultural perspective, the concept of formative assessment is another important cornerstone of the present study apart from language teacher cognition and sociocultural theory. Therefore, in the following section, the concept of formative assessment will be explained with examples and definitions from the prominent studies in the field. Furthermore, the significance of investigating formative assessment in relation to language teacher cognition with a sociocultural perspective will be elaborated on as the present study intends to take the initial steps of investigating these three concepts together for the first time to the best of the researcher's knowledge.

Formative Assessment

According to Li (2017), the process of learning-to-teach is about constructing the meaning of teaching, and it is a period for professional growth, which includes mastery of lesson planning, activity design, appropriate material choice, implementation of the lesson plan in the classroom, giving feedback, and assessing students. Li's (ibid.) description for the process of learning-to-teach indicates the

complexity of teaching activity, especially when it is considered that these elements of the process must be pondered upon for every single lesson. By fulfilling these elements of professional growth, teachers can create successful learning opportunities for learners and can foster student learning in the end as the ultimate goal of teaching-learning activity. If we educate teachers to develop in these constituents of teacher learning stated above, we also need to educate them to recognise the real moments of student learning as it is the main goal of teaching and learning. At this point, it can be claimed that development of formative assessment skills may help teachers to see whether their process of teacher learning is ultimately resulting in student learning or not. According to Rea-Dickins (2004), assessment is an important part of teaching, and as a part of teaching profession, teachers gain insights about student progress and learning outcomes by observing their students. In line with this, Turner and Purpura (2016) remarked on teachers' responsibilities of utilizing formative assessment in an effective learning environment. They also highlighted on the need for teachers to develop an understanding of students' learning process in order to conduct formative classroom practices. These formative practices include developing appropriate assessment skills, being aware of the moments for assessment, understanding the success criteria, interpreting the results, acting upon these results, and making informed decisions for the next steps of teaching and learning. Turner and Purpura (ibid.) continued their discussion by highlighting on the significance of pre-service and in-service teacher education in developing these formative assessment skills as also suggested by Stiggins (2010).

The current dissertation study regards formative assessment as one of the teaching skills which must be emphasized in teacher education in order to support both teacher learning and student learning. This perspective is based on the features of formative assessment identified by ARG (2002) as "the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there". Within the framework of this definition, it might be claimed that development of formative assessment teacher cognition holds a significant place in teacher learning as it is a way to enhance ongoing student learning. With a particular attention to the development of formative assessment skills in a training process,

scholars may help prospective teachers to become aware of the opportunities for an increased student understanding and learning. By gaining formative assessment skills, teachers may create a balance between 'assessment for learning' and 'assessment of learning'.

Emerged in mainstream education (Black & Wiliam, 1998), formative assessment has recently started to be investigated in language education (e.g. Anton, 2015; Davison & Leung, 2009; Rea-Dickins & Gardner, 2000; Rea-Dickins, 2006). A good number of studies conducted on formative assessment indicate a positive relationship between the use of formative assessment strategies and student achievement (e.g. Andersson & Palm, 2017b, 2018; Black & Wiliam, 1998, 2018). Formative assessment is of great value in the case of second language development as a part of classroom-based teacher assessment (Leung, 2005). Most of the conceptualizations made for formative assessment focus on the idea of using evidence of student learning for adjusting teaching and learning activities based on learners' learning needs (Heritage & Heritage, 2013; Schneider & Gowan, 2013; Van de Pol, Volman, & Beishuizen, 2011). However, there is no uniformity on the precise definition of the concept of formative assessment (Andersson & Palm, 2017b; Baird et al., 2014; Bennett, 2011; Black & Wiliam, 2018; Filsecker & Kerres, 2012; Good, 2011; Wiliam, 2011a). While some definitions conceptualize formative assessment as an instrument (e.g. testing, questioning to gather evidence of student learning needs), some others define it as a process or a combination of both instrument and process (Bennett, 2011). Another important distinctive factor among the definitions is the place for the roles attributed to the teacher and the learners in terms of the main agents shaping teaching and learning in the classroom (Baird et al., 2014). In order to eliminate the complexity created by the abundance of definitions and to adopt a revised perspective, the present study adheres to the definitions made by two pivotal studies, which were presented in the chapter for introduction (see the previous chapter for formative assessment definitions by Black & Wiliam, 2009 and Klenowski, 2009).

The definition made by Black and Wiliam (2009) pertains to a unified practice of integrated strategies and indicates that formative assessment is embedded in the whole classroom practice and conducted by different parties – teacher, learners, and peers. By building on this definition, Wiliam and Thompson (2008) presented

the idea behind formative assessment in a framework, which operationalizes the practical use of formative classroom practices. This framework was used as supplementary material for reflective writing practices in the present study (see section for reflective journals in the chapter for methodology). The framework concretely illustrates the concept of formative assessment as (a) eliciting the evidence of student learning, (b) adjusting the instruction based on this evidence, (c) improved response to teaching and learning needs, within five main key strategies. Further detailed information about this framework is provided in the chapter for methodology.

KS 1. Clarifying, sharing and understanding learning intentions and criteria for success

KS 2. Engineering effective classroom discussions, questions, and tasks that elicit evidence of learning

KS 3. Providing feedback that moves learners forward

KS 4. Activating students as instructional resources for one another

KS 5. Activating students as the owners of their own learning

(William & Thompson, 2008, p. 63).

These key strategies are not regarded as stand-alone entities or sequential steps (Hawe & Parr, 2014). All the key strategies in the framework are connected, and they all contribute to the development of one another.

The term of formative assessment is used interchangeably with the terms of classroom-based assessment, learning-oriented assessment, assessment for learning, alternative assessment, informal assessment, teacher-based assessment, school-based assessment, and formative classroom practice. Despite different focal points, they all foster classroom- and learning-oriented assessment practice (Davison & Leung, 2009). Formative assessment is central to teaching and learning within classroom, and it requires the skills of observation and interpretation from a teacher so that s/he can elicit the evidence of how much the learners as individuals and as a group have understood, have learnt, and still need to learn. Moreover, formative assessment plays as an informative skill for the teacher in terms of the suitability of instructional practices by providing feedback on teachers' classroom activities and informing future lesson planning. It shapes the way the teacher proceeds with his/her teaching. During this 'assessment in action' process, teachers observe, attend to learners by listening, and respond to these learners' learning

needs in various ways. The level of teacher intervention within the framework of formative assessment might be pre-planned or responsive to the pedagogical needs of the teaching moment. Turner and Purpura (2016) illustrated a framework for the ways to implement assessment inside and outside the classroom, and exemplified how these implementations can contribute to learning-oriented assessment, namely formative assessment (see Figure 1 below).

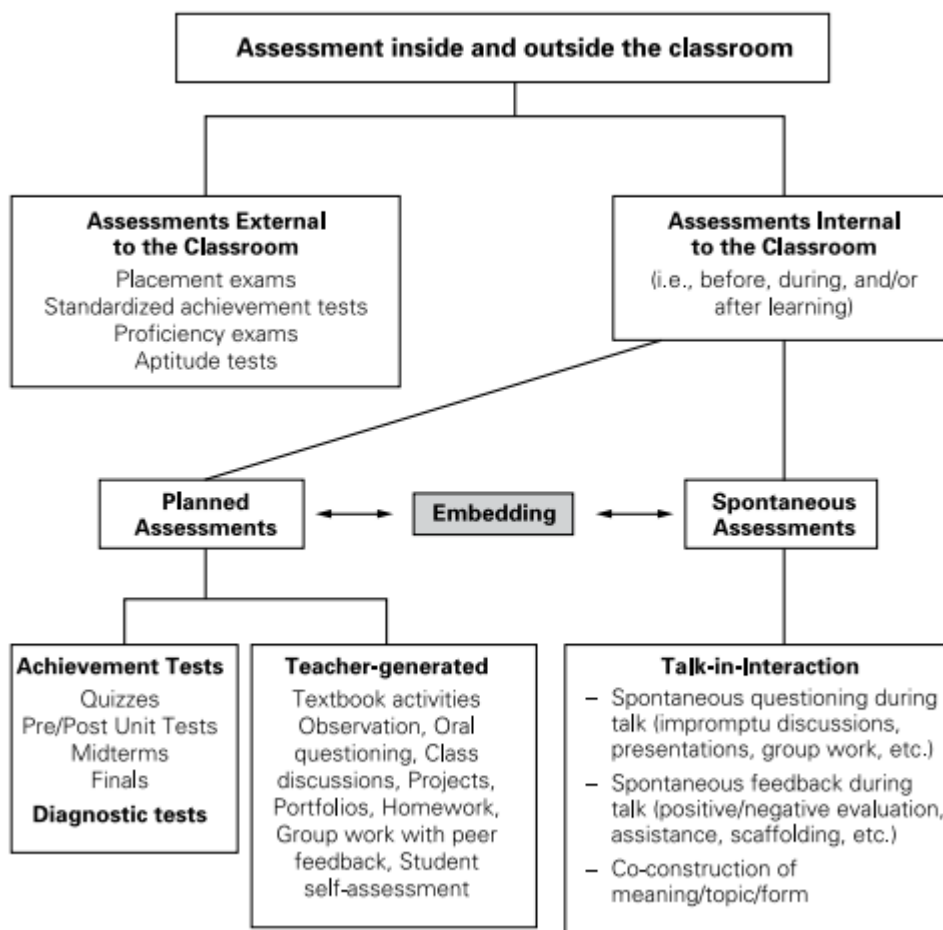


Figure 1. Ways to elicit language for assessment inside and outside the classroom. How can they serve LOA? (Turner & Purpura, 2016, p. 264).

Conceptualization of formative assessment clearly indicates that it is not enough to develop the skills of noticing the evidence of student learning. Formative classroom practices involve generating information about the state of learners' learning within the framework of a learning and teaching aim. This information is then used to adjust the instructional practices in order to enhance student learning. The evidence of student learning must be used to treat the learning gap and to shape future performance by making instructional adjustments in 'moments of

contingency'. Otherwise, the assessment is not conceptualized as formative without functioning as effective feedback (Andersson & Palm, 2017b; Black & Wiliam, 2009, 2018; Wiliam, 2011). What teachers are required to do in terms of formative assessment skills is to develop the capability of interpreting and using this evidence for successful task completion or to strengthen learning as the ultimate goal of teaching. Black and Wiliam (1998a, 2009) suggested identifying the signs of learners' understanding, knowledge, and learning with some potential clues which occur when learners are able to 'extend a concept', 'use processes in a different context', 'focus attention', and when there is evidence of 'persistence on a task' (p. 57).

The skills of formative assessment became important for teachers to attain, and there has been an increased interest in investigating classroom-based assessment because of the educational reforms aiming at increased teacher involvement in the process of student learning (Davies, Herbst, & Sherman, 2016; Leung & Rea-Dickins, 2007), the significance of teacher-based assessment in increasing student achievement (Andersson & Palm, 2017b, 2018; Black & Wiliam, 2009; Wiliam, 2017, 2018), and concerns about the negative washback effects of high-stakes examination systems on teaching and assessment practices (Cheng, Watanabe, & Curtis, 2003; Hatipoğlu, 2015a, 2015b, 2016, 2017).

Ruiz-Primo (2011) described the most of teacher and learner activity in the classroom as potential assessments, which provide evidence about student understanding. Likewise, Rea-Dickins (2001) remarked on the significance of routine classroom teaching activity in enabling teachers to make decisions about their learners regarding their knowledge, understanding, and progress. Furthermore, formal assessment activities, tests, and routine instructional practices can be implemented with formative purposes. This formative side of the assessment also allows teachers to determine 'what to teach next' and 'how to teach it' by constituting an important part of classroom practice. Rea-Dickins (ibid.) identified the informal assessment strategies associated with good classroom practice as (a) teacher questioning and probing, (b) small-group interaction between learners and their teacher, (c) interaction between an individual learner and teacher, (d) effective collaboration among learners themselves while being observed by their teacher, and (e) more formal feedback in terms of comments on learners' oral and written work.

Drawing upon these formative assessment strategies, it might be claimed that teachers and learners spend more time on classroom-based assessment activities than on summative side of the assessment.

At the intersection of formative assessment and teacher learning, the literature is dominated by the studies with experimental designs which conduct quantitative comparisons in the context of in-service teacher education, and the effectiveness of these practices is generally interpreted with increased student achievement (e.g. Andersson & Palm, 2017b, 2018; Brookhart et al., 2008, 2010; Mazzie, 2008; Meisels et al., 2003; Sato et al., 2008; Schneider et al., 2007; William et al., 2004; Yin et al., 2008). A related stream of research focuses on the professional development programmes in formative assessments and their effects on teaching and student achievement (e.g. Andersson & Palm, 2017a, 2017b, 2018; Randel et al., 2016; Schneider & Randel, 2010). Some studies indicate that promoting formative assessment skills through teacher development programmes may result in unsuccessful outcomes in terms of a developed formative assessment practice (e.g. De Lisle, 2015; Schneider & Randel, 2010; Wylie & Lyon, 2015). The reason of these findings may entail the difficulties and impediments behind implementing formative assessment. Opposite to these findings, Andersson and Palm (2017a), by focusing on formative assessment as a unity of integrated strategies, reported significant and improved changes in participant teachers' formative classroom practices after an in-service teacher training programme. These changes were also interpreted with increased student achievement in an experimental study design in a larger project by the same researchers (Andersson & Palm, 2017b, 2018).

Some prominent studies focus on the reasons behind the difficulties for teachers to develop formative assessment skills and practices. For example, controversial factors like the accountability (Darling-Hammond & McCloskey, 2008; Klenowski, 2011) and exam-oriented systems and excessive focus on summative assessment (Bennett, 2011; Black & William, 2009, 2018; William, 2006) may disrupt the implementation of formative assessment. Secondly, as being a complex concept (Vingsle, 2014), the necessity of using assessment to determine the next steps of instruction makes formative assessment difficult for teachers to internalize (Heritage, Kim, Vendlinski, & Herman, 2009; Schneider & Meyer, 2012). Other

reasons impeding the implementation of formative assessment might be the misconceptions regarding the meanings of formative assessment, teachers' perceptions of its value, and teacher beliefs about teaching and learning (DeLuca, Luu, Sun, & Klinger, 2012). By looking at studies on the effects of professional development programmes on student achievement or research on the factors hindering successful implementation of formative assessment, investigating teachers' construction and development of formative assessment teacher cognition might bring new insights into understanding formative assessment and its implementation. Especially, investigating language teacher cognition and formative assessment together in a pre-service teacher education context might provide important implications for teacher education programmes, teacher educators, and policy makers at the point where instruction and assessment meets. Gaining awareness about formative assessment and developing language teacher cognition in relation with it in pre-service teacher education might pave the way for developed teaching and assessment skills, more learning opportunities for students, and ultimately increased student achievement.

In line with the scope of the present study, the relevant literature of foreign language teaching represents studies investigating the role of teacher knowledge, experience, and beliefs in formative assessment practices in language teaching contexts (e.g. Büyükkaracı, 2014; Rea-Dickins, 2004; Xu & Liu, 2009; Yin, 2010). Studies also indicate that teachers' beliefs regarding assessment are generally related to their broader philosophy of teaching and learning (e.g. Hill & McNamara, 2012; James, 2006; Leung, 2005, 2007; McMillan & Nash, 2000; Wiliam, 2001). For instance, Chang (2005) reported that the participant English language teachers in her study believed that they should conduct assessment to improve student learning, but without creating negative student emotions. According to Leung and Lewkowicz (2006), it is "a good idea to first find out what teachers think and do when carrying out classroom assessment" (pp. 227-228).

With a similar concern, Yin (2010) criticized the inadequate attention paid to teachers' thought processes when utilizing classroom-based assessment, and conducted a case study with two EAP instructors in a language centre at a UK university by using multiple data collection tools involving classroom observations, stimulated recalls, and interviews. The study revealed various types of cognitions

that the teachers developed on formative assessment practices and provided suggestions for improved classroom assessment. Yin's study highlighted the significance of 'teacher agency' (Rea-Dickins, 2004) in assessment as teachers "constantly make decisions related to assessment in the midst of conflicting demands and numerous considerations" (Yin, 2010, p. 193). Likewise, Davison (2004) conducted research on teacher beliefs and understandings about teacher-based assessment in different national contexts, and particularly focused on teachers' decision-making on assessment and their orientations in making these decisions. In her study, Davison (*ibid.*) emphasized the importance of teachers' articulating their beliefs about assessment, which encouraged them to explore their implicit conceptualizations of student performance by also developing greater understanding of assessment practices.

By being aware of the fact that there has been inadequate attention to formative classroom practice with a focus on teacher's decision-making process, attitudes, beliefs, knowledge and thoughts, the present study investigates the construction of formative assessment skills and the construction process with a sociocultural perspective on pre-service language teacher cognition. By integrating formative assessment in a teacher-cognition-oriented investigation, one of the goals of the current study is to investigate how pre-service language teachers notice their beliefs, thoughts, and knowledge related to formative assessment and understand their own practices considering formative assessment. Therefore, the present study aims to explore student teachers' construction of formative assessment teacher cognition in L2 teacher education context with a sociocultural perspective. Details regarding the methodology of the present study is presented in the next chapter.

Chapter 3

Methodology

The body of research in teacher cognition requires a shift from identifying effective teacher behaviours to an understanding of investigating teaching from the participants' perspective rather than from the researcher's perspective (Tsui, 2011). For this, a hermeneutic approach which is a research paradigm examining a phenomenon based on the meanings that the participants attach to it (Freeman, 1996) is required. In order to attain an in-depth and contextualized understanding of teacher cognition, recent studies have highlighted the value of studying the phenomenon qualitatively (e.g. Li & Walsh, 2011; Li, 2017, 2020). Accordingly, the present study is a qualitative case study investigating the cognitions about formative assessment and formative classroom practices of pre-service English language teachers and the construction process of these cognitions throughout school experience and practice teaching in an academic year.

Bernat and Gvozdenko (2005) emphasized that case study is qualitative in nature and contributes to an interpretive paradigm, and it is an approach to research that facilitates exploration of a phenomenon within its context using a variety of data sources (Baxter & Jack, 2008; Yin, 2009). Since it does not necessarily lead to generalisations to be made, a case study provides detailed descriptions which can contribute to our understanding of learning-to-teach process of pre-service language teachers and their language teacher cognition about formative assessment. If the findings are generalised, it is done by audiences through "naturalistic generalisation" (Johansson, 2003, p. 8). Case study as a research method is important as it provides "a rich and vivid description of events with the analysis of them" (Hitchcock & Hughes, 1995, p. 317). Accordingly, it would not be wrong to claim that case study is a proper strategy to appeal to the complexity of teacher cognition and the influential factors of the context (Li & Walsh, 2011). In a case study focusing on teacher cognition, more than one method must be used, and the focus must be gradually shifted from articulated beliefs to the understanding of what teachers believe and how they practice in their contexts (Li, 2017).

Its high degree of completeness, depth of analysis and readability makes a case study an effective research method in generating new hypotheses, models, and understandings about the target phenomena (Dörnyei, 2007). Therefore, in a

case study, the aim is not to test a priori hypotheses but to be descriptive of important patterns and themes in the data (Chapelle & Duff, 2003).

Research Design

Stake (1995) and Yin (2003) adopted a constructivist paradigm as an approach to case study. This paradigm bases its foundations on the idea that truth is both relative and is dependent on one's perspective, and it is based on the theory of the reality as socially constructed (Searle, 1995). This approach enables participants to tell their stories in detail while creating a close collaboration between the researcher and the participants (Crabtree & Miller, 1999). By telling their own stories, the participants describe their views of reality, and this helps the researcher to understand the participants' actions better (Yin, 2003). In this sense, the present dissertation attunes with the requirements of constructivist perspective by prioritizing the participant pre-service language teachers' learning-to-teach experiences to reach the details of their construction of formative assessment teacher cognition. In the process of collecting data from participants' own stories, a collaborative environment was created between the researcher and the participants. As suggested by Arnould and Wallendorf (1994), the present study seeks a deep understanding by directly observing the participants in 'real time'.

By following the steps for case study design explained by Baxter and Jack (2008), the present study firstly specified the case and formed the research questions. This process was followed by determining the boundaries of the case. Next, the type of the case study was determined based on the criteria presented by Yin (2003), and the data sources were diversified to meet the requirements of triangulation and data credibility. These processes are explained in the upcoming paragraphs in detail.

According to Yin (2003), a case study design should be considered when:

(a) the focus of the study is to answer "how" and "why" questions; (b) you cannot manipulate the behaviour of those involved in the study; (c) you want to cover contextual conditions because you believe they are relevant to the phenomenon under study; or (d) the boundaries are not clear between the phenomenon and context (p. 13).

Miles and Huberman (1994) defined the case as "a phenomenon of some sort occurring in a bounded context" (p. 25). Accordingly, the present case study seeks

to describe the construction of formative assessment teacher cognition and the factors influencing the construction process. While doing these, it also aims to describe how sociocultural resources mediate the construction process of formative assessment teacher cognition. Case study design as the methodology was chosen because the case was determined as the construction of formative assessment teacher cognition, which was intended to be explored with a sociocultural perspective. Johansson (2003) stated that pioneers of the case study method (e.g. Gillham, 2001; Merriam, 1998; Miles & Huberman, 1994; Stake, 1995, 1998; Yin, 1994, 2003) agree on the features of a 'case' as a complex and contemporary functioning unit which must be investigated in its natural context with a multitude of methods, and he defined the case as "a phenomenon specific to time and space" (p. 5). The case in the present study is bounded by space and time due to the limited data collection period -an academic year- and size of the informants who participated in the study -eight pre-service English teachers-. The case could not be considered without the context, pre-service language teacher education, and more specifically the classroom observation and practice settings. It is these settings that the language teacher cognition about formative assessment was expected to be constructed and be utilized. It would have been impossible for the researcher to have a true picture of pre-service language teacher cognition without considering the context within which it occurred.

As a longitudinal case study, the present study aims to reveal the major shifts in the construction process of pre-service language teachers' formative assessment cognition and the factors that influenced those processes through the lens of sociocultural theory. Based on the case investigated, following three research questions were formulated for the current study:

1. What are the factors influencing the construction of pre-service language teachers' formative assessment cognition?
2. How does the construction of formative assessment teacher cognition progress?
3. How do sociocultural resources mediate the construction process of formative assessment teacher cognition?

Upon determining the case, the boundaries of the case must be determined as well by binding the case by time and place (Creswell, 2003), by time and activity (Stake, 1995), and by definition and context (Miles & Huberman, 1994). Binding the case ensures that the study remains reasonable in scope. In the present study, the boundaries were established with a concise definition of language teacher cognition and formative assessment (see the section for definitions in the chapter for introduction). The researcher also indicated the place and the time where pre-service language teachers were expected to construct their formative assessment teacher cognition: department of English language teaching at a state university and an academic year including school experience and practice teaching courses successively. The boundaries in a case study help the researcher to determine what will be included and what will be excluded in the scope of the research (Baxter & Jack, 2008).

After determining the research questions and the case and binding the case, the next step was to specify the type of the current case study. Yin (2003) classified case studies as explanatory, exploratory, and descriptive, and he differentiated between holistic single-case studies and multiple-case studies. According to the categories determined by Yin (2003), the present study adopts the types of descriptive and holistic single-case study which “is used to describe an intervention or phenomenon and the real-life context in which it occurred” (p. 24). A single-case study looks at one set of contextual conditions while the multiple-case study design is used when analysing situations from multiple contexts. The case in the present study was determined as the construction of formative assessment teacher cognition in pre-service language teacher education context, which was intended to be explored with a sociocultural perspective. Accordingly, in the present study, the researcher analysed a single context from various perspectives. While this approach to case study does not allow for comparisons across participants as cases, it does allow for more in-depth analysis of the investigated phenomena. Within the framework of the multiple perspectives provided by the participant pre-service language teachers as part of this case study, the researcher adopted a single case study design using holistic evidence.

As van Lier (2005) summarized, case study design is a significant method in investigating changes in complex phenomena over a course of time. What makes

case studies inherently longitudinal is the prolonged engagement with the participants. In such a longitudinal research design, researcher gathers information about the target of the research during a series of points in time. As Menard (2002) stated, in a longitudinal study, (a) data are collected for two or more distinct time periods; (b) the subjects or cases analysed are the same or are comparable (i.e. drawn from the same population) from one period to the next; and (c) the analysis involves some comparison of data between periods. According to Menard (*ibid.*), longitudinal research designs should enable the examination of differences or change in the investigated phenomena from one period to another. Accordingly, the present study meets the requirements of a longitudinal research design by displaying prolonged engagement with the participants, by collecting data at different time periods with multiple data collection tools (see Figure 2 in data collection section), by selecting the participants from the same population (explained in detail in setting and participants section), and by involving comparisons across the datasets and between periods (see Figure 4 in data analysis section). These processes serve the aim of tracking the formation of formative assessment teacher cognition and describing the process of learning-to-teach.

Trustworthiness of the Study

A qualitative case study design was adopted in the present study to investigate the complex interrelationship between formative assessment teacher cognition and formative classroom practice and to trace the formation of teacher formative assessment teacher cognition in pre-service teacher education. There are various frameworks developed to assess the trustworthiness of qualitative data (e.g., Guba, 1981; Lincoln & Guba, 1985). In qualitative research designs, there are specific terminologies to talk about reliability and validity of the study like credibility, transferability, dependability, and confirmability (e.g., Krefting, 1991; Sandelowski, 1986, 1993).

As stated beforehand, using multiple data sources is an important feature of case study research (Patton, 1990; Yin, 2003). With these various data sources, it is aimed to obtain multiple perspectives which start to occur with a broader focus and then narrows in light of data to understand individual's experience. This allows to reveal and understand multiple facets of the phenomenon instead of a single point

of view. Patton (1990) put forward that triangulation is crucial to protect a study's findings from becoming an artefact of a single method. In this sense, the present dissertation study meets the conditions of triangulation and data credibility by using document analysis, reflective journals, semi-structured interviews, classroom observation, field notes, pre-observation conferences, and post-observation conferences as data collection tools (see Figure 2 in data collection section). Data obtained from these different sources were not handled individually but were converged in the analysis process. As Baxter and Jack (2008) stated, this convergence strengthens the findings by providing a greater understanding of the case.

In terms of the trustworthiness of the present study, a number of principles suggested by Lincoln and Guba (1985, as cited in Cohen, Manion, & Morrison, 2007) for conducting qualitative research were followed. In order to form the *credibility* of the findings, the researcher tried to establish rapport with participants with a prolonged exposure to the phenomenon under study within its context. In consideration of the issue of credibility, multiple perspectives were obtained with multiple data sources, which also helped to reduce potential for social desirability responses in interviews and reflective writings (Krefting, 1991). Transcriptions of semi-structured interviews, pre-observation and post-observation conferences and the translated parts of the datasets were made available to the participants in order to avoid any possible misunderstandings, and they were invited for further comments through member-checking. In member-checking, the researcher shared the interpretations of the data with the participants. In this way, the participants were provided with the opportunity to comment on the interpretation of the data for discussion and clarification of the issue. For *transferability* and *comparability* dimensions of the trustworthiness in the present study, the sample was specified with a thick and in-depth description of the research context. The researcher tried to explain the connections in the existing literature by asking following questions proposed by Richards (2003):

- (a)** Is this situation typical and if so how? Is it exceptional and if so why?
- (b)** Is the description sufficiently detailed and richly articulated to allow readers to respond to it in terms of their own experience?
- (c)** Are there connections with other research, other situations, and other cases that we can usefully point to? (Richards, 2003, pp. 289-290).

The last two important points to be considered based on trustworthiness are *confirmability* and *dependability*. In order to ensure *confirmability*, the transparency of the whole data and procedures were provided, and these were presented in a richer way with participants' voices. By keeping a researcher diary, the researcher took notes of any changes and events that could affect the results of the study. As for *dependability*, the research context and data collection methods were questioned by providing information about how the data were combined and analysed (Richards, 2009). As suggested by Yin (2003), the researcher tried to acquire the ability to ask good questions, the ability to be adaptive and flexible, and the ability to be unbiased by preconceived notions. At the stage of analysis, in order to ensure the consistency of the findings for dependability, peer debriefing (Creswell, 2011) was conducted with two colleagues who are also researchers in the field of foreign language education and teacher education. As PhD candidates of ELT with several years of teaching and research experience, the debriefers provided feedback on the researcher's data analysis by asking probing questions and querying the interpretations. Moreover, a second coder was invited to code some parts of the data. More detailed information about the procedure of inter-rater reliability check is provided in the section for coding process at the end of the methodology chapter.

Setting and Participants

The present study was described within the parameters of a case study, and it is a holistic single-case study with multiple participants. This research method was the best approach because of its result as a "thick description for the phenomena in study" (Merriam, 1998, p. 11). The study focused on eight student teachers' process of teaching practicum. In other words, the case is 'pre-service language teachers' construction of formative assessment teacher cognition during their teaching practicum' bounded in a language teacher education programme within the limits of school experience and practice teaching courses in the fourth year of their teacher education.

Participants. Pre-service EFL teachers enrolled in a four-year language teacher education programme at a state university constitute the participants of the present case study. By making use of a non-probability sampling type, the participants were selected through convenience sampling strategy (Creswell, 2007).

Convenience sampling was significant at accessing the participants in terms of time, location, and willingness to participate (Etikan, Musa, & Alkassim, 2016; Marshall, 1996). The aim was to collect data from individuals who were believed to be “information rich” (Patton, 1990, p. 169). At the beginning of the academic year, the researcher conducted a meeting with each of the participants. With this meeting, it was aimed to get to know the participants and explain the procedures of the study. The participants were assured that their performances during teaching practices or their reflective practices under the scope of the study would not be assessed as a part of their teacher education process. They were reminded that their participation was on voluntary basis, and they could withdraw from the study any time they felt uncomfortable. Moreover, the participants were also guaranteed that the identities and the data collected would be kept anonymous and confidential.

Borg (2006) defined pre-service teachers as “those engaged in initial teacher education programmes (...) who typically have no formal language teaching experience” (p. 50). In accordance with this definition, pre-service language teachers in the current study consisted of eight senior student teachers who have not had any formal language teaching experience before. Eight of them together attended the same secondary school in the city centre for school experience and teaching practice courses. Other groups of student-teachers were also attending similar secondary schools in the city centre. They were in the training group of two different mentor teachers at the host school and were instructed by one teacher educator at the faculty under the scope of school experience and teaching practice courses. Regarding these features, it can be claimed that participants also constitute a typical case sampling with their ‘typicality and representativeness’ (Yin, 2003). Duff (2014) suggested having four to six participants in case studies for doctoral research, which permits multiple ways of reporting the findings (in pairs, as individual cases, according to themes that cut across the samples) and mitigates against possible attrition among participants. Accordingly, the present study meets this prior condition stated by Duff (2014). Their GPAs range from 2.75 to 3.70, and the average of their ages is between 21 and 24. Six of the eight participant student-teachers are female, and the number of males is two. The participants were introduced with the codes of TT1 (Trainee Teacher 1), TT2, TT3, etc., and their demographic features are demonstrated in Table 1 below.

Table 1

Demographic Features of Participant Pre-service English Language Teachers

Participants	Gender	Age	GPA	Type of graduated High school
TT1	F	21	3.30	Anatolian teacher training high school
TT2	M	22	3.60	General high school
TT3	F	24	2.75	Anatolian high school
TT4	F	21	3.08	Anatolian high school
TT5	M	22	3.42	Anatolian high school
TT6	F	23	3.70	Anatolian high school
TT7	F	21	3.30	Anatolian teacher training high school
TT8	F	21	3.00	Anatolian high school

Note. $n = 8$.

Setting. The present study was conducted at a state university, at the department of English language teaching, and at a public secondary school in the city centre of the same province. Data collection with interviews, reflections, documents, pre-observation and post-observation conferences were carried out in an office at the department while trainee teachers' actual classroom practices were observed at the host school. Therefore, data collection setting was natural and a real context.

The language teacher education programmes in Turkey last for four years and there are main and common components of these programmes as set by the Council of Higher Education. The courses in a teacher education programme are categorized as a) methodology (e.g. Approaches to ELT, Teaching Language Skills), b) linguistics (e.g. Linguistics I & II), c) pedagogy (e.g. Introduction to Educational Sciences, Educational Psychology), d) literature (e.g. English Literature, Drama), and e) teaching practicum (e.g. School Experience and Practice Teaching). Graduates of the programme are qualified to teach English as a foreign language at primary, secondary, and tertiary levels of education.

In Turkey, as determined by the Council of Higher Education, practicum in teacher education programmes is carried out in the form of two courses: School Experience and Practice Teaching, the former of which is conducted in fall term while the latter is conducted in spring term. During school experience, student-teachers are assigned to a teacher educator at the department of English language teaching and a mentor teacher at the host school. They are expected to visit the

host school for four to six hours per week and prepare an observation portfolio which includes weekly tasks like observation of the mentor teacher's and a student's one day at school, how the teacher organizes the lesson, manages the segments of the lesson, finishes the lesson, evaluates students' work, and applies teaching methods and techniques, what kind of activities the teacher reinforces, and what the teacher does for classroom management. Based on the course outline published at the website of department of foreign language education at Middle East Technical University (METU), some of the course objectives of school experience course are stated as follows: "By the end of this course, students will be able to: (1) understand the complexity of teaching in a real classroom environment, (2) interpret the classroom events they observe in the light of educational theory, and (3) demonstrate a teacher stance" (English Language Teaching (Undergraduate) Programme, 2018, Fourth Year section, row 5). Contrary to the general depiction made by the Council of Higher Education for the school experience course content, the same department provides more specific explanations:

This course aims to prepare student teachers for full teaching practice. It gives them a structured introduction to teaching, helps them acquire teaching competencies and develop teaching skills. Student teachers have observation and application tasks that they carry out in a primary or secondary school under the supervision of a cooperating teacher. Some observation tasks include: effective use of textbooks; topic sequencing and lesson planning; classroom management; preparing and using worksheets; effective questioning skills; explaining (row 5).

The spring term is allocated to practice teaching for which student-teachers are assigned to a teacher educator at the department of English language teaching and a mentor teacher at the host school. They are expected to visit the host school for six hours per week. The Council of Higher Education describes the course content as preparing a lesson plan each week, execution of this lesson plan at the host school, and the evaluation of this process by the teacher educator and mentor teacher. English language teaching (undergraduate) programme at METU (2018, Fourth Year section, row 8) specifies this general description to the field of English language teaching:

Consolidating the skills necessary for teaching English as a foreign language at primary and secondary schools through observation and teaching practice in pre-determined secondary schools under staff supervision; critically analysing the previously acquired teaching related knowledge and skills

through further reading, research and in class activities in order to develop a professional view of the ELT field (row 8).

At the end of this process, student-teachers are expected to gain authentic experience through actual teaching practices at primary or secondary schools under the supervision of teacher educator and the mentor teacher. They are expected to gain awareness of similarities and differences between theoretical aspects of language teaching and their practical applications. Through this process, student-teachers are believed to develop a professional identity and cooperation.

Data Collection

For this qualitative case study, data were obtained through multiple sources as suggested by Yin (2003) for triangulation and validity purposes. Multiple sources of data in this study included reflective journals, document analysis, semi-structured interviews, classroom observation (field notes), pre-observation and post-observation conferences. The data were triangulated with different data collection tools for each research question, which aims to increase the credibility of the findings. Table 2 demonstrates the rationale behind the research questions and data collection tools:

Table 2

The Rationale Behind The Research Questions and Data Collection Techniques

Research Questions	Data Collection Tools	Rationale
(1) What are the factors influencing the construction of pre-service language teachers' formative assessment cognition?	<ul style="list-style-type: none"> → Semi-structured Interviews → Reflective Journals → Classroom Observation (Field notes) → Pre-observation Conferences → Post-observation Conferences → Documents (Lesson Plans) 	<ul style="list-style-type: none"> → to find out the foundations of formative assessment teacher cognition and the factors forming this concept → to understand what student-teachers refer to as a basis of their cognition in learning-to-teach process → to conceptualize the results for theory building about the formation of teacher cognition and its relation to the process of learning-to-teach
(2) How does the construction of formative	→ Semi-structured Interviews	→ to reveal the major shifts in pre-service language

assessment teacher cognition progress?	<ul style="list-style-type: none"> → Reflective Journals → Classroom Observation (Field notes) → Pre-observation Conferences → Post-observation Conferences → Documents (Lesson Plans) 	<p>teachers' formative assessment cognition</p> <p>→ to conceptualize the results for theory building about the formation of teacher cognition and its relation to the process of learning-to-teach</p> <p>→ to learn about the insights of pre-service teachers and their thought process</p>
(3) How do sociocultural resources mediate the construction process of formative assessment teacher cognition?	<ul style="list-style-type: none"> → Semi-structured Interviews → Reflective Journals → Classroom Observation (Field notes) → Pre-observation Conferences → Post-observation Conferences → Documents (Lesson Plans) 	<p>→ to reveal the resources that mediated the construction of formative assessment teacher cognition through the lens of sociocultural theory</p> <p>→ to determine the potential growth points in the process of learning-to-teach</p> <p>→ to obtain information on what is happening how</p>

Data for this study was collected through six main stages (see Figure 2 below). Before the data collection commenced, informed consent was sought from and granted by all the participants. The first stage involved the collection of the base-line data through interviews, reflective journals, documents, classroom observation, and post-observation conference. In this study, base-line data is regarded as the initial step of data collection to identify the foundations of pre-service language teacher cognition, which served as a basis to understand the factors influencing formative assessment teacher cognition. This stage of data collection was spread throughout the Fall term under the scope of school experience course. Firstly, four semi-structured interviews were conducted successively throughout the term with pre-service language teachers in order to have an idea about their general views of language teaching, learning, and assessment. As another term-long data collection method, the participants were asked to write weekly reflective journals based on their observations regarding language teaching methodology, classroom management, error correction, feedback, teacher questions, student participation,

assessment, instruction-giving, etc. These reflective journals were collected for 10 weeks, and there were 80 of them in total at the end of the first phase. At the end of the term, the participant pre-service teachers were asked to design a 20-minute lesson plan -which was used for document analysis later- and conduct it in one of the classes they observed throughout the term. This mini-teaching-practice was observed by taking ethnographic field notes. After this first teaching practice, the teacher educator and each participant came together in a post-observation conference which was audio-recorded for the data analysis. As the last step for this stage of the study, together with a general reflection on teacher education process, another interview was conducted with the participant trainees to get their opinions about their observations, reflective practices, their first teaching practice, and their evolving ideas about the topics in the reflective journals (see Interview Guide VI, Section A, Appendix A).

Before starting the second phase of the study, the participant pre-service teachers attended a three-hour session about formative assessment conducted by the researcher. The aim with this short informative session was to provide some background knowledge about formative assessment because it was organized as the focus point of the next five phases of the study. Although language assessment is one of the main topics that pre-service language teachers study at their last year of teacher education, these courses are mainly based on the summative part of language assessment with an emphasis on the large-scale standardized testing external to the classroom (Hatipoğlu, 2015, 2017; Şahin, 2019). Therefore, with a brief introduction of formative assessment to pre-service language teachers, it was aimed to bring on the stage the alternative of classroom-based assessment practices which are conducted internal to the classroom by the teacher. With this short intervention, it was tried to clarify the concepts of the differences between summative assessment and formative assessment, up-to-date definitions of formative assessment, the five key strategies of formative assessment, and why it is important. The aim was not to change the participants' attitudes towards assessment but to prepare them for the necessary knowledge and terminology for the next reflective practices in the next phases of the study.

The next stages of data collection started in Spring term under the scope of practice teaching course. As illustrated in Figure 2, stages of II, III, IV, and V included

six steps within themselves, and in each of these stages, data was collected through pre-observation conferences, documents (lesson plans), classroom observation (field notes), post-observation conferences, semi-structured interviews, and reflective journals successively. Pre- and post-observation conferences were conducted for each stage with each participant trainee teacher separately. Together with the ones in the first phase of the study, there were conducted 32 pre-observation conferences and 40 post-observation conferences at the end of the data collection process. Duration of these conferences ranged between 10 mins to 20 mins. These meetings were audiotaped and transcribed for the data analysis. Document analysis was enacted by using lesson plans, and there are 4 lesson plans for each student teacher (32 in total in this stage of the study), which were prepared before each teaching session during and after pre-observation conferences. The third step of data collection process in these stages was occupied by classroom observations. In order to collect data related to participant student-teachers' formative classroom practices, the researcher took ethnographic field notes which were later referred to during semi-structured interviews, and they were used for descriptive analysis. There are 4 sessions of classroom observation (32 in total) lasting 40 minutes in average per pre-service teacher. Another important instrument in these stages (II, III, IV, V) is semi-structured interviews which were conducted respectively in different time periods after teaching practice sessions. There are 4 semi-structured interviews for each participant (32 in total in stages II, III, IV, V), and they last 40 minutes in average. These interviews were audiotaped and transcribed for the data analysis. The final data collection technique in those stages (II, III, IV, and V) is reflective journals which were carried out after teaching practice sessions. This set of data was collected four times for each of the eight student-teachers and used for content analysis. The framework used for reflective journals is explained in the section for data collection methods.

This process for stages II, III, IV, and V was repeated for four times. Lastly, student-teachers, having completed their practicum, were interviewed for the last time in stage VI to obtain information on their post-practicum cognitions regarding formative assessment and to evaluate the learning-to-teach process they have been through. Summary of database is presented in Table 3, and the stages and the steps of data collection process are illustrated in detail in Figure 2 below.

Table 3

Summary of Database

Methods	Data Collection	Data
Documents (lesson plans)	- 5 lesson plans - per pre-service teacher [8]	- 40 lesson plans total
Reflective journals	- once a week; for 10 weeks; during school experience; Stage I - 4 reflective journals after teaching sessions; during teaching practice; Stages II, III, IV, V - per pre-service teacher [8]	- 112 reflective journals total
Semi-structured interviews	- 5 semi-structured interviews; Stage I - 4 semi-structured interviews; Stages II, III, IV, V; after each teaching session - 1 semi-structured interview; Stage VI - per pre-service teacher [8]	- 80 interviews total
Classroom Observation (fieldnotes)	- 5 classroom observations - teaching practices conducted by the participant pre-service teachers - Stages I, II, III, IV, V - per pre-service teacher [8]	- 40 classroom observations total
Pre-observation Conferences	- 4 sessions - per pre-service teacher [8] - before each teaching session; Stages II, III, IV, V	- 32 pre-observation conferences total

Post-observation Conferences	- 5 sessions	- 40 post-observation conferences total
	- per pre-service teacher [8]	
	- after each teaching session; Stages I, II, III, IV, V	

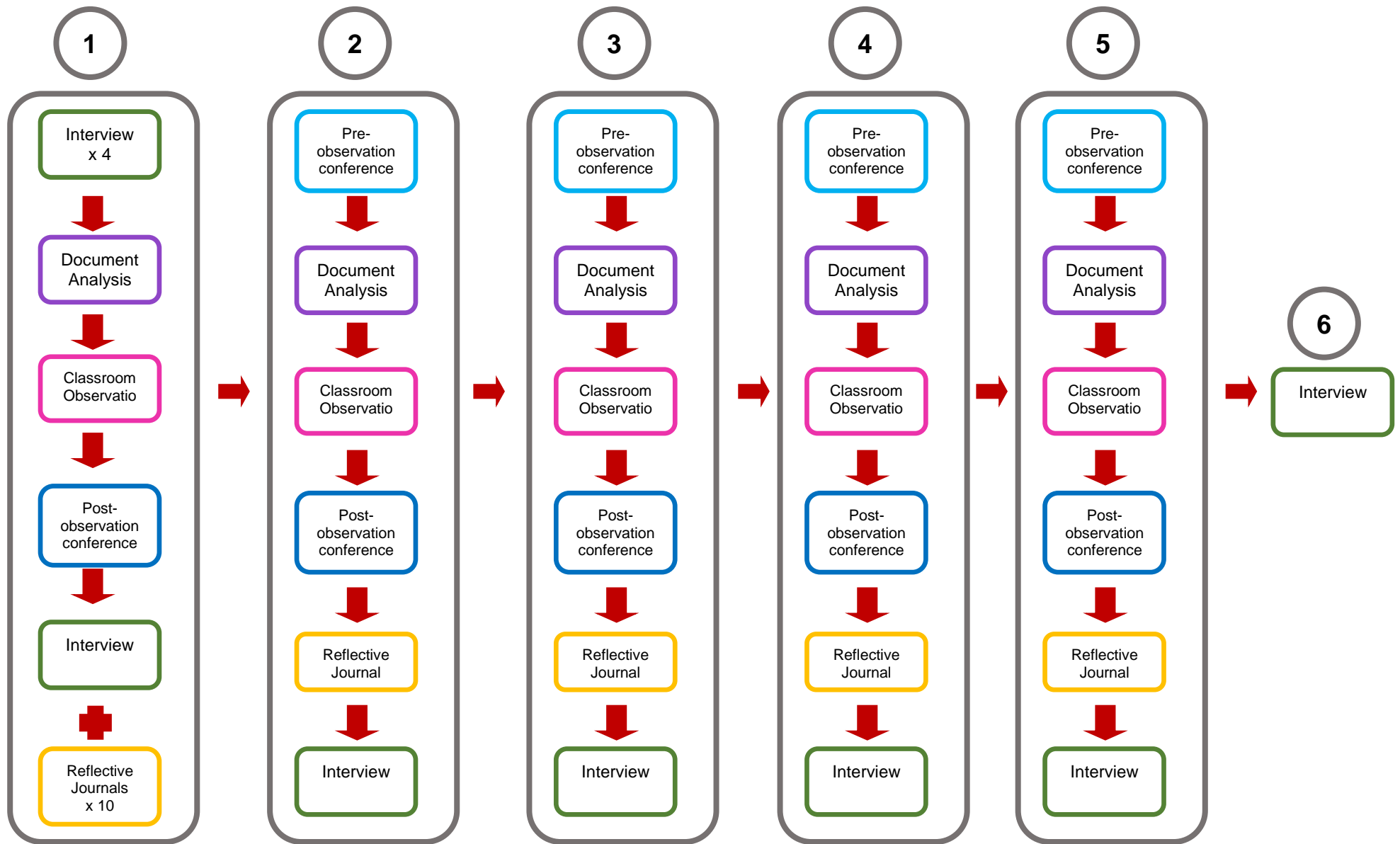


Figure 2. Data collection process.

Data Collection Methods

Foss and Kleinsasser (2001) highlighted the importance of including multiple types of inquiry or triangulation to capture complexities in a comprehensive investigation of teacher education. Due to employing a qualitative research design, the present study used different inquiry tools for all phases of data collection (see Figure 2). Data collection methods consist of documents (lesson plans), reflective journals, semi-structured interviews, classroom observation (ethnographic fieldnotes), pre-observation conferences, and post-observation conferences. In the upcoming sections, each of these data collection methods is explained in detail.

Documents (lesson plans). Documents and materials can be used by researchers since they provide detailed information about the investigated topic (Marshall & Rossman, 2011). Organisational and institutional documents have been an important part of qualitative studies for many years. Through document analysis, researchers can review or evaluate documents (both printed and electronic) with a systematic procedure (Bowen, 2009). As an important research method in qualitative research, document analysis provides opportunities to elicit meaning, gain understanding, and develop empirical knowledge while being examined and interpreted (Corbin & Strauss, 2008). According to Bowen (2009), documents need to be text- or image-based which has been recorded without the researcher's intervention.

Document analysis consists of four main stages of analytic procedure: finding, selecting, appraising, and synthesising the data. The data obtained from document analysis is organised into major themes and categories through content analysis (Labuschagne, 2003). It is generally used as a means of triangulation with other qualitative data collection tools (Yin, 2003). It is stated as applicable to qualitative case studies (Stake, 1995). As Merriam (1988) pointed out, by analysing the documents systematically, researchers can develop understanding by discovering the meaning relevant to the research problem.

The role of the document analysis in the present study is to provide "supplementary research data" and "a means of tracking change and development" (Bowen, 2009, p. 30). Therefore, lesson plans were used to investigate the complex structure of teacher cognition, and there are 5 lesson plans for each student teacher

(40 in total), which were prepared before each teaching session. In order to execute the documents as “a supplementary research data” and “a means of tracking change and development”, the documents were triangulated with other data collection methods such as reflective journals, semi-structured interviews, classroom observation, etc. By doing so, the researcher aimed to bring an explanation for the major shifts in pre-service language teachers’ cognitions about formative assessment and the resources that mediated this process through the lens of sociocultural theory.

Reflective journals. Borg (2015) described reflective writing as an important data collection method in enabling teachers to express themselves in written form by revealing their beliefs, thoughts, and attitudes regarding particular topics or experiences. He categorized four types of reflective writing: journals, autobiography, retrospective accounts, and concept maps. Researchers have widely used reflective writing to support and study teachers’ understandings of their own learning and practices in the field of teacher education (Murray, 2009). In this field, reflective journals as a data collection method have been employed to record teacher development, encourage reflection, and as a way of collecting feedback on classroom practices and teacher education courses (e.g. Bigelow & Ranney, 2005; Numrich, 1996; Sakui & Gaies, 2003). However, the number of studies using reflective writing to investigate teacher cognition is quite limited (Borg, 2015). In journal writing, events are described and analysed both retrospectively and introspectively. Therefore, this data collection method is valued in teacher cognition research, by means of which mental processes are made explicit and so available for examination (ibid.).

Reflective journals in the first stage of the present study (see Figure 2) were used as a means to elicit pre-service language teachers’ approaches to teaching and their experiences of recent observed lesson in relation to how the teacher organizes the lesson, manages the segments of the lesson, finishes the lesson, evaluates students’ work and applies teaching methods and techniques, what kind of activities the teacher reinforces, and what the teacher does for classroom management in addition to error correction, feedback, teacher questions, student participation, assessment, instruction-giving, etc. This set of reflective journals were collected under the scope of school experience course for 10 weeks throughout the

Fall term of an academic year. The reflections included comments about the students, the curriculum, the mentor teacher, and the practicum experience itself as well. Student-teachers were given a certain topic weekly in order to limit the frames of their reflections. The student-teachers were familiar with how to write a reflective journal as they used this method in their methodology courses in previous terms in teacher education. As the first stage of data collection process (see Figure 2), reflective journals helped the researcher to collect base-line data to identify the foundations of pre-service language teacher cognition, which served as a basis to understand the factors influencing language teacher cognition. These reflective journals were collected for 10 weeks, and there were 80 of them at the end of the term.

At the next four stages in the present study (Stages II, III, IV, V), the participant student teachers were asked to conduct a reflective writing after each teaching session (4 reflective journals per participant, 32 in total). These processes of reflective writing were conducted successively during teaching practice course. However, this time, the participants were provided with a framework to reflect on their own classroom practices in order to document their formative assessment teacher cognition.

The definition of formative assessment by Black and Wiliam (2009, p. 9) (see the section for definitions in the chapter for introduction) highlights the inherent importance of formative assessment in the whole classroom practice and presents the concept of formative assessment as a unified practice of integrated strategies. These features of formative assessment were operationalized in a unified framework by Wiliam and Thompson (2008) with an emphasis on learning and practical use of formative assessment. It is based on the idea of using evidence of student learning to adjust instruction with five key strategies demonstrated in Figure 3 below.

	Where the learner is going	Where the learner is right now	How to get there
Teacher	KS1 Clarifying learning intentions and criteria for success	KS2 Engineering effective classroom discussions and other learning tasks that elicit evidence of student understanding	KS3 Providing feedback that moves learners forward
Peer	Understanding and sharing learning intentions and criteria for success	KS4 Activating students as instructional resources for one another	
Learner	Understanding learning intentions and criteria for success	KS5 Activating students as the owners of their own learning	

Figure 3. Aspects of formative assessment by William and Thompson (2008, p. 63).

This unified formative assessment framework links the key strategies to formative assessment in two dimensions. The first dimension consists of three key steps in teaching and learning: ‘where the learner is going’, ‘where the learner is right now’, and ‘how to get there’ (William & Thompson, 2008, p. 63). According to this framework, using formative assessment requires being clear about the specific learning goals and focusing on the elicitation, interpretation, and use of information in order to determine the next instruction or learning process. For the initial part of the first dimension (where the learner is going), the teacher needs to clarify learning goals in order to orient students to a mutual understanding of these goals and criteria for success. Next, in order to understand where the learners are in their learning, the teacher may elicit evidence of students’ learning by engineering effective classroom discussions, questions, and tasks. Lastly, in the third process, the teacher may foster student learning more by providing feedback that moves learners forward. The second dimension of the framework constitutes the three agents in the classroom as the participants in all processes: teacher, peer and learner. By using the last two key strategies 4 and 5, the teacher may help students to become active agents in the processes of where the learner is going, where the learner is right now, and how to get there in collaboration as instructional resources for each other and as self-regulated learners. According to Andersson and Palm (2017b), if teachers can integrate all the strategies in their classroom practices, student achievement

and engagement in instructional activities can be fostered. During all these processes, the teacher and students support learning by working together.

Accordingly, participant student teachers were asked to choose at least one formative assessment moment (successful or unsuccessful) from their last teaching session, describe those teaching moments in detail, and reflect on it in terms of successful or unsuccessful use of formative assessment based on the framework and five key strategies framed by William and Thompson (2008). Reflective journals can in isolation provide insights into pre-service teachers' cognitive processes, though the present study aimed to complement these insights by findings from additional data sources (see Figure 2 & Figure 4).

Semi-structured interviews. As one of the widely used data collection instruments in educational sciences, interviews are used to attain detailed personal information when the researcher cannot directly observe participants (Creswell, 2011). In semi-structured interviews, participants elaborate on the investigated issue with an exploratory manner based on the guideline questions and prompts prepared by the researcher (Dörnyei, 2007). There are a set of topics or a loosely defined series of questions, which allow the conversation a certain amount of freedom in terms of the direction it takes, and the interview structure is flexible that the interviewees are encouraged to talk in an open-ended manner about the topics under discussion or any other matters they feel are relevant (Cohen, Manion, & Morrison, 2000; Creswell, 2007; Opie, 2004). According to Mason (2002), in semi-structured interviews, the researcher and interviewees get involved in a co-production by creating meanings and understandings. Semi-structured interviews are advantageous in that they allow the researcher to form a relationship with the participants by establishing rapport (Fontana & Frey, 1994), and this prevents the interview from turning into a formalized exchange in which the researcher imposes an authority on the respondent (Kvale, 2006). Using semi-structured interviews as a data collection method enables the researcher to investigate tacit and unobservable dimensions of participants' lives (Glesne & Peshkin, 1992) by allowing for interpreting the respondents' experiences from their point of view, which are represented in participants' own expressions (Kvale, 2006).

This data collection strategy is also widely used in language teacher cognition research to elicit teachers' understanding, perceptions and beliefs about aspects of

language teaching and learning (Li, 2017, 2020). Borg (2015) stated the importance of interviews in enabling teachers articulate their cognitions and in providing an account of the cognitive processes in their practice. Similarly, Wyatt (2009) pointed out that the researcher can access the participant teachers' beliefs, feelings, and thoughts with the use of interviews. In line with these, according to Li (2017), this data collection method has been very effective in understanding teacher cognition in relation to personal theories and the role of context.

The present study benefited from semi-structured interviews as one of the main instruments of data collection process. The data collection process was comprised of six stages as illustrated in Figure 2, and semi-structured interviews took place in all of these stages (Stages I, II, III, IV, V, & VI). These interviews were conducted respectively in different time periods before and after the teaching sessions, and one was conducted at the end of the data collection process as the final stage. There are 10 semi-structured interviews for each participant (80 in total), and they last 40 minutes in average (5 semi-structured interviews in Stage I, 4 semi-structured interviews in Stages II, III, IV, V, and 1 semi-structured interview in Stage VI). These interviews were audiotaped and transcribed for the data analysis. As demonstrated in Table 2, semi-structured interviews were used (a) to find out the foundations of formative assessment teacher cognition and the factors forming this concept, (b) to understand what student-teachers refer to as a basis of their cognition in learning-to-teach process, (c) to conceptualize the results for theory building about the formation of teacher cognition and its relation to the process of learning-to-teach, (d) to reveal the major shifts in pre-service language teachers' formative assessment cognition, (e) to learn about the insights of pre-service teachers and their thought process, (f) to reveal the resources that mediated the construction of formative assessment teacher cognition through the lens of sociocultural theory, (g) to determine the potential growth points in the process of learning-to-teach, and (h) to obtain information on what is happening how.

After finalizing the interview guide with expert opinions, it was piloted before the main study to refine data collection plans and develop relevant lines of questions as Yin (2003) recommended and to make sure that the expected in-depth exploration of the issues of interest in the research can be obtained. The other aims

of piloting with a nonparticipant were to ensure that language is clear, and the statements are not too complicated.

The interview guide (see Appendix A) is comprised of the semi-structured interviews which were conducted in different time periods. The first series of interviews in Stage I were conducted to obtain base-line data to identify the foundations of pre-service language teacher cognition, which served as a basis to understand the factors influencing formative assessment teacher cognition. The first interview includes three sections which aims to collect data related to participant pre-service language teachers' general views of language teaching and learning. Section A is an introductory part which aims to collect information about demographic information such as participant's ages, graduated high schools, GPAs, etc. Section B is about participants' educational background and their past language learning experiences. This section includes questions like *'Can you tell me about your experiences as a language learner in primary school/secondary school/ high school?'* and *'Can you tell me about your prior English teachers?'*. Section C is a continuum of Section B by focusing more on participants' pre-service teacher education (Example questions: *'Why did you choose to study at the department of English language teaching after taking university entrance exam?'* and *'Can you tell me about your experiences as a pre-service language teacher at the beginning of your university life?'*). The next interview (2nd) was conducted under the section of a general reflection on 'teaching', and this part includes questions like *'How and why did you want to become an EFL teacher?'* and *'What do you feel the most satisfying aspect of teaching EFL is, and what is the hardest part of the profession?'*. Following this, the third interview was conducted under the theme of teaching with a focus on the specific points in language teaching by including questions like *'What are teacher and learner roles in a language classroom?'* and *'What is the role of teacher feedback when a student makes a mistake?'*. With the fourth interview, the researcher specifically concentrated on the concept of assessment in order to lead into the cognitions related to formative assessment by using questions like *'What is the role of assessment in student learning?'* and *'Do you think it is possible to integrate learning and teaching with assessment? If so, how?'*. As a last step for Stage I of the study, together with a general reflection on teacher education process, another interview was conducted with the participant trainees to get their opinions

about their observations, reflective practices, their first teaching practice, and their evolving ideas about the topics in the reflective journals (see Appendix A).

In the next four stages (Stage II, III, IV, and V), the same semi-structured interview guideline was used in order to collect data about participant pre-service teachers' formative classroom practices. They were conducted after teaching practice sessions, and there are 4 semi-structured interviews for each participant (32 in total in stages II, III, IV, V), and they last 40 minutes in average by including questions such as *'Were you able to integrate Formative Assessment into the teaching and learning process in your last teaching practice? Why and how?'* and *'What were your in-class activities to monitor and assess learners' participation and performance?'*. Lastly, the interview in Stage VI, as the final stage of the data collection process, includes only two sections. Section A provides a general reflection on teacher education process with questions like *'In your teacher education, what have the greatest influences on your development as a teacher been?'* and *'What is the gap between your teaching vision and the reality you experienced during your teaching practices?'*. In order to provide a more general retrospective and introspective perspective about assessment and formative assessment, Section B was framed around formative assessment practices by asking questions like *'How can a teacher check learners' understanding during the lesson?'* and *'Are you willing to integrate Formative Assessment into your teaching? Why?'*. All of the interviews were audiotaped and transcribed for the data analysis.

Classroom observation (ethnographic fieldnotes). According to Borg (2015), analyses solely focusing on teachers' reported cognitions fall short in explaining the complexity of language teacher cognition. Therefore, what or how teachers think of what they do should be investigated with reference to what happens in classrooms. Classroom observation is a common data collection strategy in studies of language teacher cognition as it provides evidence of what happens in classrooms. When combined with interviews, classroom observation is described as an ideal investigation tool to explore and understand teacher beliefs both theoretically and practically (Li, 2017). Data obtained from the observations is non-interventionist and descriptive for the evidence of the behaviour (Borg, 2006, 2015). Patton (1990) described five methodological dimensions of observation: "(1) the role of the observer, (2) the extent to which those observed know that

observation is taking place, (3) the extent to which those observed know the purpose of the observation, (4) the duration of the observations, and (5) the focus of the observation” (p. 217). In the present study, participant pre-service EFL teachers were observed during their teaching practices at the host school. For the first dimension stated by Patton (1990), the researcher adopted a non-participant role in the observations. The researcher in the classroom sat at the back, took fieldnotes, and avoided interacting with the observed participants and the students during events being observed. The participants welcomed the observations naturally as they are an important part of the practicum process which was described in detail in the section for setting and participants above. Therefore, they knew that they were being observed during their classroom practices. They were also informed that the researcher attained a non-participant role to observe their classroom practices to collect descriptive data for the evidence of what they do in the classroom within the general principle of informed consent and honest disclosure about the purposes of the research. The duration of the observations was limited to a lesson hour for each participant (in average 40 minutes for each participant). There are 5 classroom observations per participant (40 in total, conducted in Stages I, II, III, IV, and V). Lastly, the focus of the observations was determined as formative classroom practices (a) to find out the foundations of formative assessment teacher cognition and the factors forming this concept, (b) to understand what student-teachers refer to as a basis of their cognition in learning-to-teach process, (c) to conceptualize the results for theory building about the formation of teacher cognition and its relation to the process of learning-to-teach, (d) to reveal the major shifts in pre-service language teachers’ formative assessment cognition, (e) to learn about the insights of pre-service teachers and their thought process, (f) to reveal the resources that mediated the construction of formative assessment teacher cognition through the lens of sociocultural theory, (g) to determine the potential growth points in the process of learning-to-teach, and (h) to obtain information on what is happening how.

By taking an unstructured observation perspective (Bryman, 2001; Robson, 2002), a full account of the events under study was collected through fieldnotes, and the data was compiled to produce narrative observation descriptions. These descriptions were used to triangulate the data and to support the analyses.

Moreover, classroom observations together with the field notes established a basis for the semi-structured interviews and served as stimuli for the recall activities in the interviews. The observations were recorded narratively through ethnographic field notes and were analysed inductively. Since the setting under observation is naturally occurring during teaching practices in the practicum process of pre-service EFL teachers, the data obtained from the classroom observations is highly important in terms of authenticity.

Pre-observation and post-observation conferences. The conversations between the teacher educator and student teachers during pre-observation and post-observation conferences constitute a strategic site for teacher learning. Therefore, investigating these meetings may help researchers to reach an understanding about how teachers' professional competence is built, negotiated, and reproduced. Although there is a tendency to foster reflective practices in teacher education (Bailey, 2006; Borg, 2015; Farrell, 2008; Mann, 2005), the implementations of reflective practice remain rare (Farr, 2010; Waring, 2017). With a focus on this lack of reflective practice in language teacher education, Copland and Mann (2010) put forward the importance of a dialogic approach to feedback in mentor-teacher conversations to highlight the value of equal participation and knowledge co-construction. At this point, it might be claimed that meetings occurring during pre-observation and post-observation conferences are valuable sites to cultivate reflection through such a dialogic approach. These sites can be utilized to understand how teachers learn and the practices fostering teacher learning (Johnson, 2009; Johnson & Golombek, 2011). Under the scope of second language teacher education, reflection has been referred to in various ways such as "ongoing conversation about teaching that gives teachers the opportunity to uncover the implicit beliefs and experiences that guide their pedagogy" (Chamberlin, 2000, p. 353) or "the ability to analyse an action systematically and to evaluate the strengths and weaknesses of the action in order to improve practice" (Copland et al., 2009, p. 18).

In the present study, with pre-observation and post-observation conference meetings, participant pre-service EFL teachers were provided with the opportunity to uncover their implicit beliefs and experiences that shape their teaching and formative classroom practices. With the reflections made during these

conferences, the trajectory of teacher learning related to formative assessment was investigated. Therefore, the present study focused on pre-observation and post-observation conferences as a locus for cultivating and doing reflection. By creating an open sharing environment for teacher candidates' perspectives regarding teaching and learning, 'externalization' (Golombek, 2011) of teacher cognition is what was aimed for, which was also supported with the reflective journals and other data collection tools throughout the study. Golombek (2011) demonstrated that the conversation between the teacher educator and the teacher may act as a mediator in the teacher's zone of proximal development (Vygotsky, 1978) by helping the trainees articulate "robust reasoning" and determining "alternative instructional responses that embody conceptual thinking" (p. 125).

As an integral part of the present study, pre-observation and post-observation conferences were conducted before and after each teaching session in Stages I, II, III, IV, and V. These meetings were held between the teacher educator and each participant pre-service language teacher separately and audio-recorded and transcribed for the analysis. Pre-observation conferences were held in order to plan the upcoming teaching practice and to focus on the details of lesson-planning. These meetings were particularly important in terms of identifying the formal formative assessment activities that were going to be used by the participant pre-service teacher. After each teaching practice, a post-observation conference was conducted. These post-observation meetings were significant in creating space to reflect on classroom practices. Even if the teacher educator and the trainee teachers did not specifically refer to formative assessment in these conferences, the responsive mediation and possible growth points occurred in these sessions helped trainee teachers to make a connection between the mediated knowledge, feeling, belief, thought, action and the formative assessment in the other segments of the dataset. Therefore, pre-observation and post-observation conferences created opportunities for trainee teachers to internalize the concept of formative assessment while building on their language teacher cognition.

For pre-observation conferences, there were conducted 4 sessions per participant in Stages II, III, IV, and V. Similarly, 5 sessions of post-observation conferences were conducted after each teaching practice in Stages I, II, III, IV, and V. There are 32 pre-observation conferences and 40 post-observation conference sessions in total, which were audio-recorded and transcribed for the data analysis.

Data Analysis

The present study is a qualitative case study investigating the cognitions about formative assessment and formative classroom practices of pre-service English language teachers and the construction process of these cognitions and practices throughout school experience and practice teaching courses in an academic year. Accordingly, the main aim of the study was to reveal the major shifts in formative assessment teacher cognition and the resources that influenced the construction of formative assessment cognition through the lens of sociocultural theory. In order to explain how these issues were investigated, detailed information is provided about the analytical frameworks used for the analyses, data analysis methods, and coding process in the following parts of the present chapter.

Analytical frameworks. In the present study, sociocultural theory (Vygotsky, 1978, 1981) was adopted as the main theoretical framework through which pre-service language teacher cognition and teacher learning was examined. As this theoretical framework interconnects social practices and activities with historical, cultural, social, institutional, and discursive components (Lantolf & Thorne, 2006), it stands as a reliable explanatory framework to understand formative assessment teacher cognition within the processes of teacher learning. In particular, sociocultural theory allowed us to understand to what extent the participant teacher candidates internalized the concept of formative assessment and enacted it in their teaching practices. More detailed information about sociocultural theory was provided in the literature review part in the previous chapter.

In accordance with sociocultural theory, analyses in the present study were guided by the genetic method that highlights the importance of studying the history of behaviour in order to reach an explanation rather than focusing merely on the description (Vygotsky, 1978). Vygotsky (*ibid.*, 1981) propounded the importance of genetic analysis in human cognition research as the understanding of advanced mental phenomena require a thorough grasp of its origins and developments, namely its 'genesis'. As a developmental approach, genetic analysis provides both explanatory and descriptive account of the investigated phenomena by capturing "a single, unified framework for analysis" (Cross, 2010, p. 439). With an emphasis on the history of cognition, Vygotsky's genetic method has some distinctive features.

For example, Vygotsky (1981) highlighted the role of “sudden, qualitative, revolutionary shifts” (p. 144) by rejecting the notion that developments occur only in quantitative accounts. He put forward that these developmental increments often get intermingled with the induction of new forms of mediation (Wertsch, 1985). Accordingly, the genesis of higher mental functions must be scrutinized as part of “a larger, integrated picture involving several genetic domains” (Wertsch, 1985, p. 27): the phylogenesis (individuals’ physical evolution), cultural-history (the broad sociocultural advances), ontogenesis (individual over lifespan), and the micro-genesis or “the moment-to-moment time of lived human experience” (Cole & Engestrom, 1995, p.19). Cross (2010) highlighted the importance of genetic analysis in explaining “the sites within which thinking, doing and context converge” (p. 440) as the unit of analysing teacher cognition.

Under the scope of the present study, Vygotsky’s genetic method implies that an examination of pre-service language teacher cognition of formative assessment must involve studying its genesis, historical developments. These ontogenetic explanations were combined with the data coming from the cultural-historical and micro-genetic analyses. As also included among discursive approaches, micro-genetic analysis enabled the researcher to study a process through in-depth analysis over a short period of time (Lavelli et al., 2005). Therefore, a micro-genetic analysis (Vygotsky, 1978) of the data was conducted in order to trace pre-service EFL teachers’ process of cognition construction as it was in the process of formation throughout the practicum experience in order to capture development in action. Cultural-historical and ontogenetic analysis frameworks were used to understand the development of the individuals by focusing on the personal history and past experiences of the participants for a more complete understanding of their present practices. The results of the present study demonstrate the criticality of what participant pre-service language teachers bring with them to their understanding of teaching and in particular formative assessment, which can be explained through the framework of genetic analysis. These analytical frameworks of genetic analysis contributed to our understanding of the shifts in the construction process of formative assessment teacher cognition together with the mediational means that have afforded these processes. Therefore, the interpretation of the data was contextualized according to specific moments of cognitive development about

formative assessment (micro-genetic), the development of the participants by focusing on their personal history and past experiences related to language teaching and formative assessment (cultural-history and ontogenesis), and the mediational sources throughout these processes (Vygotsky & Luria, 1994). It was at this level of analysis that teacher cognition was explored. By using reflective journals, documents, interviews, classroom observations, and pre- and post-observation conferences, formative classroom practices and participants' reasoning about them were analysed as being informed by the framework of genetic analysis.

Table 4

The Rationale Behind Research Questions, Analytical Frameworks, and Data Analysis Methods

Research Questions	Analytical frameworks under SCT and genetic analysis	Data Analysis Methods	Rationale
(1) What are the factors influencing the construction of pre-service language teachers' formative assessment cognition?	→ cultural-history (the broad sociocultural advances) → ontogenesis (individual over lifespan)	→ grounded content analysis → sociocultural discourse analysis	→ to find out the foundations of formative assessment teacher cognition and the factors forming this concept → to understand what student-teachers refer to as a basis of their cognition in learning-to-teach process → to conceptualize the results for theory building about the formation of teacher cognition and its relation to the process of learning-to-teach
(2) How does the construction of formative assessment teacher cognition progress?	→ ontogenesis (individual over lifespan) → micro-genesis or "the moment-to-moment time of lived human experience"	→ grounded content analysis → sociocultural discourse analysis	→ to reveal the major shifts in pre-service language teachers' formative assessment cognition → to conceptualize the results for theory building about the formation of teacher cognition and its relation to the process of learning-to-teach

			→ to learn about the insights of pre-service teachers and their thought process
(3) How do sociocultural resources mediate the construction process of formative assessment teacher cognition?	→ cultural-history (the broad sociocultural advances) → ontogenesis (individual over lifespan) → micro-genesis or “the moment-to-moment time of lived human experience”	→ grounded content analysis → sociocultural discourse analysis	→ to reveal the resources that mediated the construction of formative assessment teacher cognition through the lens of sociocultural theory → to determine the potential growth points in the process of learning-to-teach → to obtain information on what is happening how

Data analysis methods. A comprehensive dataset was formed for each participant pre-service teacher by combining reflective journals, interviews, classroom observations, field notes, pre- and post-observation conferences, and documents. A grounded content analysis (Bogdan & Biklen, 1998; Glaser & Strauss, 1967) was conducted to analyse the data by specifically focusing on the principles of ethnographic semantics in which the primary focus of the investigation is the meanings that individuals give to their verbal expressions (Spradley, 1979; Spradley & McCurdy, 1972). In order to develop an understanding of the data, the constant comparative method was also utilized (Bogdan & Biklen, 1998; Glaser & Strauss, 1967; Goetz & LeCompte, 1981), which “combines inductive category coding with a simultaneous comparison of all social incidents observed” (Goetz & LeCompte, 1981, p.58). An open-coding technique enabled the researcher to examine the data in detail in the process of naming and categorizing of phenomena (Strauss & Corbin, 1998). From this perspective, the coding and the analysis were based on an exploratory nature rather than confirming any predetermined scheme. As the coding was pursued, the new codes emerging from the data was compared to the previous ones. If they did not match, a new label was given to the latest one. The emerging codes were later compared with the ones exist in the relevant literature. Based on these analyses, the data were examined to uncover the participant pre-service

teachers' understandings and practices of formative assessment as they both understood and experienced them within the contexts in which they were situated.

Content analysis is simply introduced as the process of analysing and reporting written, verbal, and visual data, and it includes systematic procedures for the examination and verification of the dataset (Cohen, Manion, & Morrison, 2007). It is used both for qualitative and quantitative purposes. Quantitative content analysis is conducted by counting labels and categorising them under different concepts (Yatağanbaba, 2014). In the qualitative content analysis, the main interest of the data examination is to find out the meanings that individuals give to their verbal expressions (Spradley, 1979; Spradley & McCurdy, 1972). Based on these descriptions, the present study will employ both qualitative and quantitative content analyses in order to bring concrete explanations for pre-service English teachers' construction of formative assessment teacher cognition with a sociocultural perspective and to support and interpret the data with the frequency analysis of these findings in the dataset with a descriptive statistical perspective. According to Weber (1990), content analysis is better accomplished when conducted in both qualitative and quantitative approaches (as cited in Zhang & Wildemuth, 2009).

Another important data analysis method in the present study is sociocultural discourse analysis. Sinclair and Coulthard (1975, 1992) conducted one of the earliest works of discourse analysis by creating a model for spoken discourse analysis focusing mainly on the interactions between the teacher and the students. The studies using the discourse analysis as a method are generally conducted at the level of exchanges. According to Sinclair and Coulthard (1992), a typical exchange pattern in the classroom consists of initiation, response, and feedback sequences between the teacher and the students. These exchange patterns are called as IRF (Initiation-Response-Feedback), which is widely used to describe and evaluate classroom interactional patterns and functions. However, according to Li (2020), teachers dominate the classroom talk in IRF structure, so this teacher-led discourse is perceived as negative. By moving away from the limitations of traditional discourse analysis, the present study firstly concentrated on the dialogic interaction between the teacher educator and the teacher candidates, and secondly took a sociocultural perspective while analysing these dialogic interactions. Therefore, instead of using traditional discourse analysis as a data analysis method,

it benefited from sociocultural discourse analysis (henceforth SCDA) which basically aims “to understand how spoken language is used as a tool for thinking collectively” (Mercer, 2004, p. 1).

One of the interests of the present study lies in uncovering the responsive mediation between the teacher educator and the participant teacher candidates while engaging in dialogic practices during pre- and post-observation conferences. Inspired from the work of Mercer (2004) and Johnson and Golombek (2016), the present study utilized SCDA as a methodology to explore the nature of the talk between the teacher educator and the teacher candidate. Based on Vygotskian sociocultural theory, SCDA focuses on the use of language as a tool for teaching and learning, which enables creating shared understanding, constructing knowledge, and solving problems collaboratively (Littleton & Mercer, 2013). It is mainly used to study the interaction in joint educational activities (Mercer, 2004). When individuals are in a joint activity, they do not only interact, but they ‘interthink’ (Mercer, 2000). Littleton and Mercer (2013) remarked on the difference between SCDA and linguistic discourse analysis as the former is less concerned with how language is organized in use but more with its content, in particular how it enables shared understanding in social context over time. Besides, as different from the discursive psychology, SCDA is interested in not only the process of joint cognitive engagement, but also in developmental and learning outcomes (Mercer, 2004).

Therefore, SCDA was considered as an appropriate methodological tool to trace pre-service language teachers’ construction of their cognition related to formative assessment and formative classroom practices through reflective practices of pre- and post-observation conferences. In order to conduct a micro-genetic analysis (Vygotsky, 1981) explained in the analytical frameworks above, SCDA was conducted to uncover the developmental trajectories as they unfold over the course of practicum process. Pre-observation and post-observation conferences were considered as critical sites that allow for the teacher educator and participant trainee teachers to engage in dialogic interactions which contribute to learning-to-teach process by creating structured mediational spaces, tools, and activities. These interactional spaces are mediated through language, and they are where *obuchenie* takes places. Vygotsky (1987) defined the concept of *obuchenie* as “teaching/learning as collaborative interactions governed by a mutuality of purpose”

(p. 212), which is considered as a useful lens to explore the dialogic interactions emerging in the practices of second language teacher education. Therefore, the present study intended to analyse what happens inside these practices in order to make the processes of mediation and teacher learning visible. By focusing on the unique characteristics of the context of the present case study, the practices conducted in the current study are offered as illustrative rather than definitive. For each SCDA, six criteria determined by Johnson and Golombek (2016) was tried to be followed:

- (a) highlight the linguistic, rhetorical, and pragmatic characteristics of the teacher educator/teacher dialogic interaction;
- (b) trace the psychological processes that emerge as teacher educators and teachers engage in *interthinking*;
- (c) identify the emergence of cognitive/emotional dissonance as potential *growth points*;
- (d) follow the emergence and preservation of an IDZ (*intermental development zone*) over the course of the practice;
- (e) describe the quality and character of the *responsive mediation* that emerges;
- (f) explore the consequences of *responsive mediation* on the ways in which teachers begin to think about and/or attempt to enact their instructional practices (Johnson & Golombek, 2016, p. 54).

Theoretical concepts used in SCDA. One of the theoretical principles in Vygotskian sociocultural theory is that psychological functions first appear in a goal-directed activity in social interaction, and then they are internalized for thinking which is used to direct the material world by humans. Based on this tenet, some studies have been interested in describing the quality of mediation by classifying the types of mediation that support cognitive development. However, Kozulin (2003) argued that classification of the types and strategies for effective mediation limits the boundaries of mediation by being too context-dependent. In line with this argument, Johnson and Golombek (2016) proposed the concept of **responsive mediation** which significantly exploits symbolic tools, namely social interaction, artifacts, and concepts, and helps to “enable teachers to appropriate them as psychological tools in learning-to-teach and ultimately in directing their teaching activity” (p. 21).

...responsive mediation as being emergent, dynamic, and contingent on the interactions between teachers and teacher educators. In this sense, teachers’ professional development is provoked when they are attempting to accomplish something that they cannot yet accomplish on their own, but they are in fact quite active, in both explicit (i.e., asking for help) and implicit (i.e.,

expression of negative emotions) ways, in shaping the quality and character of the mediation that emerges during interactions with teacher educators (Johnson & Golombek, 2016, p. 31).

In teacher education, mediation generally occurs during lesson preparation or reflection sessions on a conducted lesson. Therefore, the quality and character of responsive mediation in second language teacher education depend on the practices conducted in its own context and prospective teachers' emotions, cognitions, and classroom practices (Johnson, 2015). There are terms related to responsive mediation, which are crucial to understand the scope of mediation in SCDA: interthinking, intermental development zone (IDZ), and cognitive/emotional dissonance as potential growth points. These terms are explained in the following parts.

Interthinking. Interthinking, namely 'thinking together', is a construct proposed by Mercer (2000) in order to explain the role of language in humans' joint intellectual activity and how it is used to create shared sense of experience. As being both an individual and social activity, interthinking is in line with Vygotskian sociocultural perspective in terms of main functions of language as a communicative/cultural tool and psychological tool. As a cultural tool, language is used to share knowledge in establishing interpersonal relationships, and as a psychological tool, it is employed to shape individual thinking. Through language, actions are collaboratively organized, planned, and regulated to solve problems, which enables the individual and the society get connected in a powerful dialectic relationship (Mercer, 2000). According to Mercer (ibid.), there are implicit interactional conventions called 'conversational ground rules' shaping and organizing the way individuals interact with each other based on the roles or positions we attach to the situations and individuals. In order to create effective interthinking, there must be a shared understanding of the conversational ground rules which govern our interactions. In teacher education, teacher educators ask questions, evaluate ideas or activities both positively and negatively, and they canalize the way teachers think and teach (Johnson & Golombek, 2016). In order to develop L2 teacher and teaching expertise, the conversational ground rules for teacher educators and prospective teachers must be continually negotiated by recognizing pre-service teachers' pre-understandings and by providing mediation

which is responsive to pre-service teachers' immediate needs, goals, emotions, and motives.

Intermental development zone (IDZ). Mercer (2000) positioned teaching-learning phenomena as an 'intermental' and 'interthinking' process, which is an important criterion in exploring the quality and character of responsive mediation in second language teacher education in the present study. Mercer (ibid.) proposed the construct of 'intermental development zone' (henceforth IDZ) in order to conceptualize how teachers and learners stay attuned to each other's changing states of knowledge, understanding, and emotions during an educational activity. The concept of IDZ is significant in understanding the role of dialogic interactions in the process of teaching and learning. Mercer (ibid.) positioned IDZ as different from Vygotsky's zone of proximal development as IDZ offers a more dialogic, negotiated, and emergent view of the dynamics of conceptual development through collective dialogue and engagement in joint activity. In a teaching and learning activity, the teacher and the learner create a joint communicative space, namely IDZ, based on their shared knowledge and aims. As the dialogue continues, IDZ is reconstituted constantly through participants' negotiation and involvement. If this occasion can be maintained successfully, the learner becomes capable of operating just beyond the established capacity, and attains this experience as a new ability and understanding with the help of the teacher. If they cannot get mutually attuned to each other, the IDZ collapses.

IDZ, as a shared communicative place, has a dual focus on "observing the progress a learner makes with the support of a particular adult [and] . . . also observ[ing] how the adult uses language and other means of communicating to create an IDZ during the activity" (Mercer & Littleton, 2007, p. 22). A specific example for the occurrence of the IDZ would be turning post-observation conferences into introspective tools which assist trainee teachers express their thinking retrospectively. In the dialogues occurring during these conferences, teacher educator guides the reflective interaction by helping to make teacher thinking explicit. Based on sociocultural theory, the interaction between the teacher educator and the trainee teacher can be conceptualized as a teaching/learning (*obuchenie*) opportunity, and this interaction between the expert and the novice has the potential of being an IDZ. As the object of analysis in IDZ, the previously observed lesson becomes a concrete resource through which the teacher educator

and the trainee teacher jointly construct the analysis of the teaching practice through talk. When IDZ is created and maintained throughout the reflective practice in post-observation conferences, the trainee teacher experiences a kind of 're-do' in a safe zone with an opportunity to 'mentally manipulate' (Lantolf & Thorne, 2006) her thinking and practice of the previously conducted lesson by co-constructing new conceptualizations of teaching.

Cognitive/emotional dissonance as potential growth points. As in line with Vygotsky's (1987) notion, prominent studies support the idea that cognitive/emotional dissonance may act as a catalyst and may pave the way for conditions supporting the development of L2 teacher learning and development with the right mediation (Childs, 2011; Golombek & Johnson, 2004; Johnson & Worden, 2014; Johnson, 2015; Kubanyiova, 2012; Reis, 2011). In this regard, Johnson and Golombek (2016) used McNeill's (2000, 2005) construct of the 'growth point' as it both explicates Vygotsky's (1987) dialectic unity of thought and language and helps to determine the critical points in teacher learning and development. McNeill (2005) defined the 'growth point' as the "minimal unit of an imagery-language dialectic" that thus constitutes a particular starting point for a thought as it "comes into being" (p. 104). For McNeill and Duncan (2000), the 'growth point' in thinking-for-speaking represents what Vygotsky called the 'psychological predicate', providing a window into thinking as it arises in and is shaped by the activity of speaking. With the notion of 'growth points', Johnson and Golombek (2016) examined the "instances of the dialectic of cognition and emotion as it arises in the context of teachers' learning-to-teach while engaged in the practices of L2 teacher education" (p. 45), and they conceptualized these growth points as "a moment or series of moments when teachers' cognitive/emotional dissonance comes into being" (p. 45). These growth points are contexts to create conditions for teacher learning and development with responsive mediation. Figure 4 below illustrates a sample analysis structure followed in SCDA in the present study.

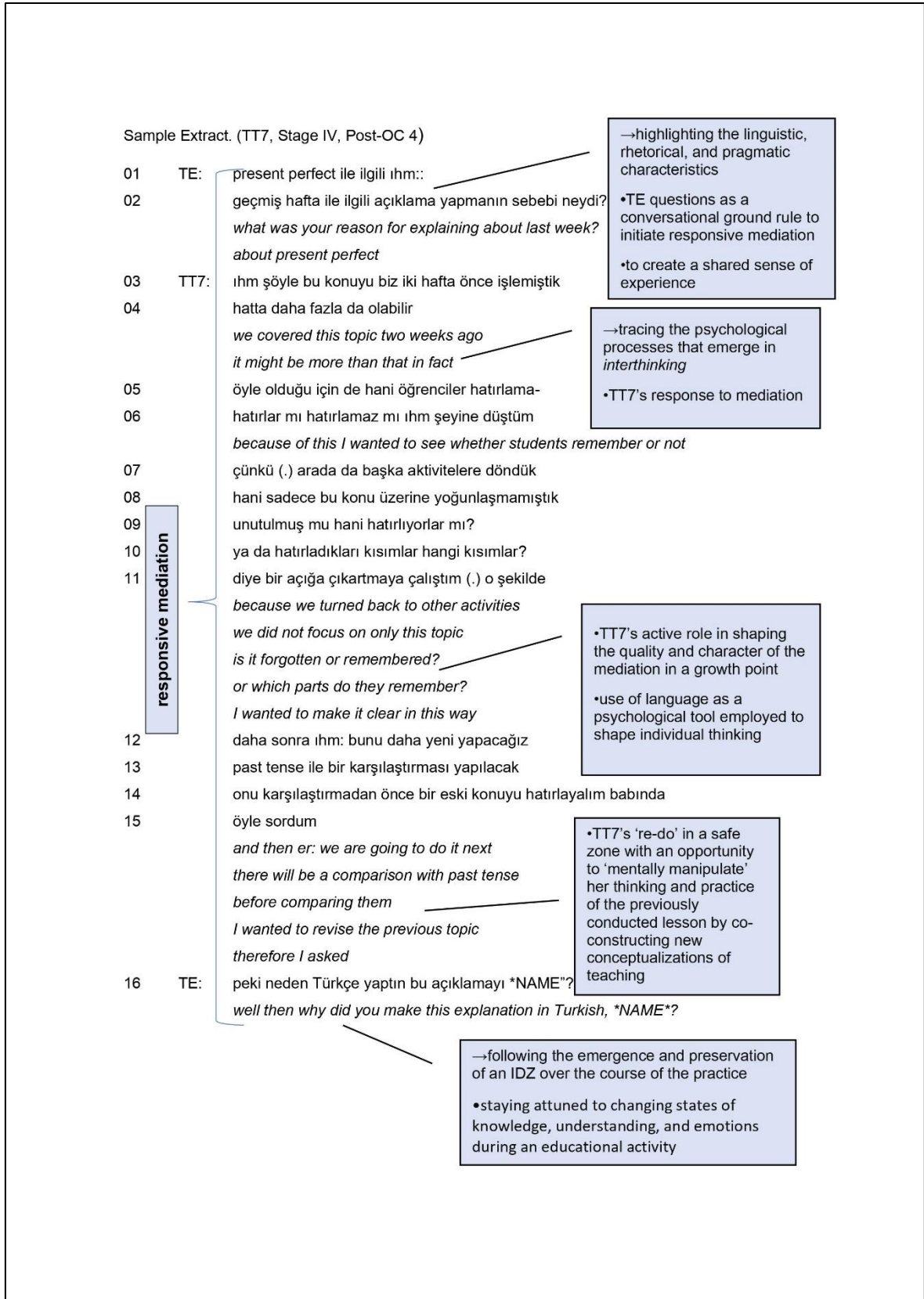


Figure 4. A sample SCDA structure in the present study.

Coding process. During the transcription process, the researcher kept a researcher's log for possible mediating sources for formative assessment teacher cognition and possible shifts in cognitive development regarding formative assessment. After the transcription phase was finalised, the transcripts were read several times to obtain a possible pattern of reoccurring themes. This pre-coding process enabled the researcher to make sense of first impressions and highlight special features of certain data segments (Dörnyei, 2007). Next, the researcher created a collection of datasets for each participant pre-service teacher. The researcher reviewed the datasets for each participant teacher candidate carefully and repeatedly and coded the data into the instances related to formative assessment cognition and formative classroom practices. Throughout this process, the data went through repeated and cyclical examinations of analysis (see Figure 4) which proceeded from more specific to more general interpretations (Creswell, 1998). Revisiting the data helped salient content categories emerge. After conceptually coded, the data started to reveal recurring patterns and themes, and the connections among these were identified so as to form tentative conceptual categories (Bogdan & Biklen, 1998). The researcher conducted these analyses in relation to research questions in order that "each theme is eligible enough to display a patterned response or meaning within the data set," (Braun & Clarke, 2006, p. 82). During this process, irrelevant ones were discarded. As suggested by Miles and Huberman (1994), through iterative processes of data reduction and verification, final themes started to emerge which were mapped along a sociocultural perspective of human learning. With the revision of the original codes, codes started to cluster under broader labels in the second-level coding. For the validity of coding process, it was checked whether new labels can be applied to all coding schemes (Dörnyei, 2007; Lynch, 2003; Stake, 1995). Lastly, the researcher produced a hierarchy of codes with a template of themes and codes.

For example, in the dataset, 'prior language learning experiences' was one of the themes that emerged as one of the factors effective in the formation of language teacher cognition. Around this macro-theme, coding of all datasets such as interviews and reflective journals proceeded from specific into more general codes related to formative assessment. Under this theme, there occurred codes of

'teachers in the past' and 'assessment in the past'. Figure 5 illustrates the process of this preliminary coding scheme below.

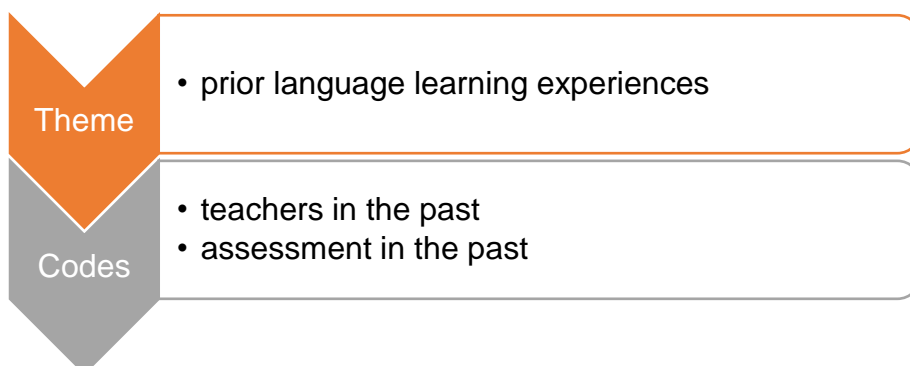


Figure 5. A sample from preliminary coding scheme.

In reference to the first research question (What are the factors influencing the construction of pre-service language teachers' formative assessment cognition?), a grounded content analysis of the whole dataset revealed three major themes mediating participant pre-service EFL teachers' formative assessment cognition (see Table 5). It should also be noted that not every participant's construction of formative assessment cognition was influenced by these factors in the same amounts. With this part of the analysis, it was mainly aimed (a) to find out the foundations of formative assessment teacher cognition and the factors forming this concept, (b) to understand what student-teachers refer to as a basis of their cognition in learning-to-teach process, (c) to conceptualize the results for theory building about the formation of teacher cognition and its relation to the process of learning-to-teach.

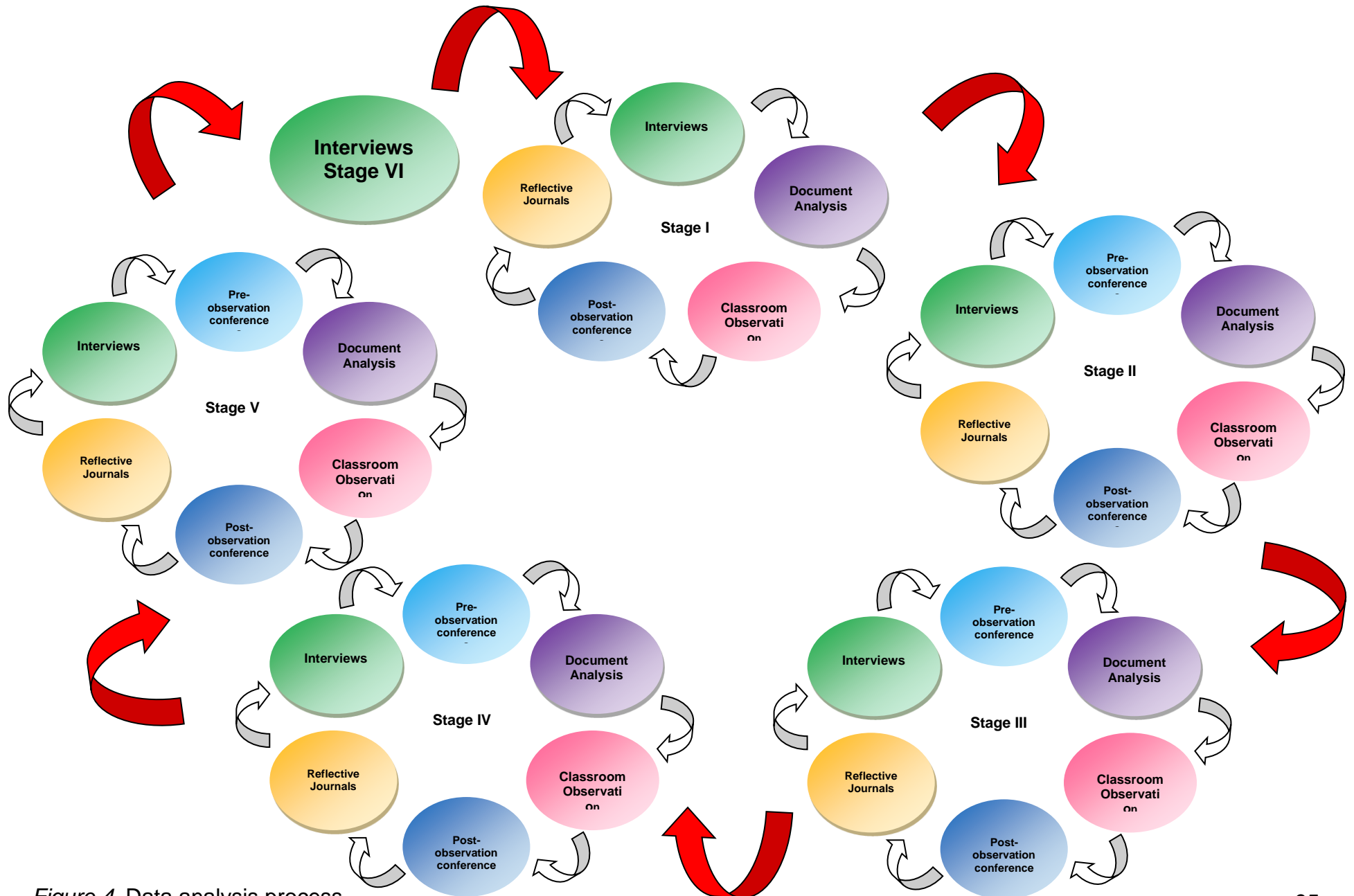


Figure 4. Data analysis process.

Table 5

Themes For The Factors Influencing The Construction of Pre-service Language Teachers' Formative Assessment Cognition

	Themes
What are the factors influencing the construction of pre-service language teachers' formative assessment cognition?	→ prior language learning experiences
	→ teacher education
	→ contextual factors

In order to understand how the construction of formative assessment teacher cognition progressed, coding of all dataset with grounded content analysis and sociocultural discourse analysis of pre- and post-observation conferences were conducted. The grounded content analysis and sociocultural discourse analysis indicated the extent to which participant pre-service teachers came to understand the concept of formative assessment and actually attempted to implement it in their instructional practices. With this part of the analysis, it was aimed to reveal the major shifts in pre-service language teachers' formative assessment cognitions and the resources that influenced the construction of formative assessment cognition through the lens of sociocultural theory. The analysis of major shifts was framed around the micro units of each influential factor in the formation of formative assessment cognition, so the analysis was not expanded to the overall development of the participants as this process was not linear, and it occurred around the main factors forming their teacher cognition. The process of cognition construction occurred in some major shifts as illustrated in Table 6. This part of coding scheme clustered under 6 main themes. However, it should also be noted that not every participant followed the same steps in the same order nor do all participants experienced all these developmental steps in the same amounts.

In the present study, the trajectory followed by the participants while constructing their formative assessment teacher cognition was scrutinized by examining the major shifts illustrated in the table below. In the findings chapter, this construction process was explained in relation to the factors that have an impact on formative assessment teacher cognition and the sociocultural resources mediating

the construction process. Table 6 displays the major shifts in the construction process along with the descriptions for each process.

Table 6

Major Shifts in The Construction Process of Pre-service Language Teachers' Formative Assessment Cognition

	Themes	Process explained
How does the construction of formative assessment teacher cognition progress?	→ dissonance	Trainee teacher (TT) perceives an inconsistency between his/her existing beliefs and newly presented information; vision and the reality; beliefs and practices; beliefs and observations. TT experiences a disorienting dilemma and confusion.
	→ exploration of teaching-related beliefs	TT realises or becomes more aware of a construct, idea or process by making connections between beliefs, observations, practices, and experiences.
	→ self-examination	TT develops a critical eye on his/her own instructional practices, beliefs, feelings, and knowledge.
	→ re-examination of alternatives	TT focuses on the idea of successful teaching and student learning with the alternative instructional practices.
	→ approval	TT recognises new information as useful in making sense of a learning/teaching issue, develops an agreement on the usefulness of new information.
	→ integration	It refers to change where TT is moving to internalization. TT implements new information purposefully. TT expresses competence and confidence in using new information, attains a changed and developed perspective of the concept and displays a desire to use it for the benefit of the students and for a better teaching.

As for the datasets spoken and/or written mainly in Turkish, the researcher conducted the analysis with the original data and translated them into English to report in the related parts of the study. A person highly competent in both English and Turkish was asked to determine the accuracy of the translation. Transcriptions of the datasets such as semi-structured interviews, pre-observation and post-observation conferences were made available to the participants in order to avoid any possible misunderstandings and to verify the interpretations of the data, and they were invited for further comments through member-checking. In member-

checking, the researcher shared the interpretations of the data with the participants, in this way the participants were provided with the opportunity to comment on the interpretation of the data for discussion and clarification of the issue. In order to improve the validity of the coding process and the interpretations of the analyses, peer debriefing (Creswell, 2011) was conducted with two colleagues who are also researchers in the field of foreign language education and teacher education. As PhD candidates of ELT with several years of teaching and research experience, the debriefers provided feedback on the researcher's data analysis by asking probing questions and querying the interpretations.

After all datasets were analysed in terms of the influential factors shaping the construction process of formative assessment teacher cognition, a second coder was invited to code some parts of the data. The coder was a colleague who has also conducted qualitative studies in the PhD programme in the field of English language teaching. Inter-rater reliability is another criterion to ensure the reliability of findings by indicating the amount of agreement among the inter-coders (Nunan & Bailey, 2009). In order to provide confidence in the findings, the coders must reach an agreement of at least .80 for a reliability check (Miles & Huberman, 1994). Miles and Huberman (ibid.) proposed a formula to accomplish the inter-rater agreement, and in this study this formula was used. The formula is as in the following:

Inter-rater agreement = Number of agreements / Total number of agreed and disagreed codes

The coder was informed about the research design, setting and participants, and the aims of the study before starting the inter-coding process. For this reliability check process, the peer coder was provided with a brief training on the coding procedures in the present study, and each code was explained with a sample excerpt from the transcripts which would not be used for inter-rater analysis check. The rationale behind the coding process was discussed together to avoid any miscommunication over the labels and what they represent. Moreover, throughout the analysis process, the researcher coded the same data iteratively and consistently to ensure the intra-rater reliability, as well.

Although the findings were supported with the analysis of the datasets including classroom observations, field notes, and documents for detailed

description and triangulation, the datasets revealing the codes for influential factors in the construction process of formative assessment cognition are mainly interviews, reflective journals, and pre- and post-observation conferences. By looking at the whole database (see Table 3), the total number of the datasets including interviews, reflective journals, and pre- and post-observation conferences for all the participants is 264 (33 per participant, see Table 3). Hodson (1999) suggests that agreement among the coders can be reached by analysing 10% of all the data. In order to ensure this minimum criterion, the datasets of two participant pre-service language teachers were determined as the platform for reliability check. The database (interviews, reflective journals, and observation conferences) of one participant consists of 33 datasets (see Table 3). Therefore, inter-coding two participants' datasets is above the criteria of 10% (as suggested by Hodson, 1999). Moreover, following the trajectory of construction process of language teacher cognition is one of the main aims in the present study. In line with this, it was thought that the peer coder's analysing a dataset over a process would allow to find out the place of sociocultural factors in a whole picture rather than separate samples from each participant. After finishing the inter-coding process in approximately two weeks, the coders discussed codes and themes by taking the aims of the study as a basis. As a result, inter-rater reliability score for the factors shaping the construction of formative assessment cognition was found to be .86, and the score for the major shifts in the construction process of formative assessment cognition was found to be .81 for the present study.

The researcher used a selected list of Jefferson's (2004) transcription conventions for the transcription of the recorded data coming from pre- and post-observation conferences. By noting that comparing the conventions for transcribing speech is useless, Mercer (2004) stated that it is the research questions and the aim of the study which should determine the level of the details in transcription. Based on the suggestions made by Mercer (2004), the present study has not focused on the micro details while transcribing the data. For example, the researcher has not focused on the length of pauses made by interlocutors or their exhalation or inhalation, etc. (as these are often indicated in conversation analysis) because these details were not relevant to the research questions of the present study. Accordingly, non-word utterances like 'err/erm, oh, huh' were included in the

transcription when they carried a communicative function in the interaction, for example, “to show surprise, agreement, or to extend a speaker’s turn in the face of possible interruptions” (ibid., p. 10). The talk in speakers’ first language was transcribed in the first language (Turkish), and the translation into English was presented under the utterance in italics. The transcription conventions that were used extensively during the transcription of the dataset from pre- and post-observation conferences are demonstrated in Table 7 below.

Table 7

Transcription Conventions Used in The Present Study

Symbol	Use
(.)	Indicates pause in speech.
[Square brackets denote a point where overlapping speech occurs.
()	Where there is space between brackets denotes that the words spoken here were too unclear to transcribe.
(())	Where double brackets appear with a description inserted denotes some contextual information where no symbol of representation was available.
:::	Colons appear to represent elongated speech, a stretched sound.
-	Indicates an abrupt halt or interruption in utterance.
° °	Indicates reduced volume speech.
? or ↑	Indicates rising pitch.
\$word\$	Dollar sign indicates that the speaker utters the word with a smile.
→	Indicates the analyst’s particular interest in that line.
NAME	Used in order to anonymise the addressee in the dialogues between the teacher educator and the participants
TE	Teacher educator
TT1, TT2, ...	Trainee teacher 1, Trainee teacher 2

Chapter 4

Findings

In this chapter of the present dissertation study, findings from the data analysis are reported. As a qualitative case study, the present study investigated formative assessment teacher cognition of pre-service English language teachers and the construction process of these cognitions throughout school experience and practice teaching courses in an academic year. Accordingly, the main aim of the present chapter is to reveal the factors that influenced the construction of pre-service language teachers' formative assessment cognition and the major shifts in the construction process of formative assessment cognitions. Each analysis is reported based on the framework provided by the research questions: the factors influencing the construction of formative assessment cognition, how the construction of this cognition progresses, and how sociocultural resources mediate the construction process of formative assessment teacher cognition. The analyses also refer to the cognitive/emotional dissonances that pre-service language teachers experienced in the formation process of formative assessment teacher cognition, and the relation of these constructs to the process of learning-to-teach. The analysis of each theme is elaborated on compactly in a part for the overview of the findings at the end of each analysis unit.

It is important to note that it is difficult to create a cause-and-effect relationship between the findings and the intervention conducted before Stage II started (with a brief introduction before Stage II, the researcher aimed to bring on the stage the alternative of classroom-based assessment practices which are conducted internal to the classroom by the teacher). It is not the aim of the study to show a causal connection, rather to describe each unit of analysis individually with some evidence of reflexivity and positionality (Pillow, 2003). However, it could be claimed that the major shifts in the construction process are important indicators for how the construction of language teacher cognition about formative assessment progresses. At this point, it should also be noted that labelling the instances of formative assessment teacher cognition was conducted around the sociocultural factors like participants' *perezhivanie* (lived experiences) and *obuchenie* (teaching/learning). Throughout the data collection and data analysis process, participants' comprehension and implementation of formative assessment

completely and correctly was not expected; however, what was informative for the researcher was whether the participants could detect or express a possible connection between their beliefs, knowledge, feelings, experiences, instructional practices, and formative assessment. Therefore, as discussed in the results section below, implementation of formative assessment does not necessarily require a participant trainee teacher to complete all key strategies in the framework proposed by Wiliam and Thompson (2008, p. 63).

The chapter for findings finalizes with the presentation of results regarding pre-service language teachers' cognitions of formative assessment within the perspective of sociocultural theory. In starting this chapter, it is worth emphasizing that the cognitions described below were held in common across the case consisting of eight participant pre-service teachers, yet in individualized ways. That is, the cognitions could be seen as basic patterns of thinking, beliefs, feelings, knowledge, and behaviours employed by the participant pre-service language teachers, but the patterns were uniquely customized for each participant due to differences in their '*perezhivanie*' (lived experiences) and '*obuchenie*' (teaching/learning relationships) (Vygotsky, 1987). Moreover, the influence of these factors on the construction of language teacher cognition occurred in different amounts for each participant.

Construction of Formative Assessment Cognition

The findings from each analysis in this section are presented in accordance with the ideas from the related literature by providing samples from the datasets as a display of the factors influencing the construction of pre-service language teachers' formative assessment cognition. A discussion on the analyses of the findings is also provided to prove why such a particular code was labelled as a factor influencing the participant pre-service language teachers' formative assessment cognition. Major shifts in the construction process of formative assessment cognition and the cognitive/emotional dissonances occurring during the formation of this cognition were not scrutinized in macro units spreading into the whole process, but in micro units framed around the influential factors affecting the construction of formative assessment teacher cognition. For example, the examination of the code 'teachers in the past' under the theme of 'prior language learning experiences' was expanded with the analysis of major shifts and the mediational means detected in the construction process of the related cognition around this influential factor.

Moreover, the places of these constructs were also discussed in relation to the process of learning-to-teach.

The analyses in this section were conducted by implementing grounded content analysis and sociocultural discourse analysis as data analysis methods under the analytical frameworks of sociocultural theory and genetic analysis. Before presenting the results of qualitative content analysis and sociocultural discourse analysis, each unit of analysis gathering under a theme start with the presentation of the results from quantitative content analysis with the demonstration of the frequencies. In the tables, 'n' represents the number of each code that occurred in the dataset of the relevant participant trainee teacher. The codes were counted as valid if there is a connection between the code and the participant's formative assessment cognition. For example, TT1's negative past language learning experiences of error correction and teacher feedback, her having problems with the implementation of these pedagogical practices, and forming a relationship between these practices and one aspect of formative assessment (KS3 – Providing feedback that moves learners forward) informed the researcher to identify and observe them as focal points for the analysis of influential factors shaping formative assessment cognition and its construction process.

The datasets revealing the codes for influential factors in the construction process of formative assessment cognition are mainly interviews, reflective journals, and pre- and post-observation conferences. However, these findings were supported with the analysis of the other datasets including classroom observations, field notes, and documents, and their relationship with formative assessment cognition was examined in accordance with this triangulation. Therefore, it is also important to examine the trajectory followed by the participants while constructing their language teacher cognition of formative assessment. In order to see the influence of a factor on language teacher cognition, we need to understand what the participants know, believe, think, feel, and practice regarding the respective factor in various dimensions. More detailed information about the construction process of language teacher cognition will be provided at the end of each analysis unit.

Prior language learning experiences. Teachers learn a lot about teaching through their experience as learners (Holt-Reynolds, 1992), and studies conducted on language teacher cognition indicate that language teachers' preconceived beliefs

about language learning and teaching are mainly affected by their past learning experiences (Johnson, 1994, 2009, 2015; Mok, 1994; Borg, 2006, 2015). Borg (2003) stated that teachers' past experiences of language learning is a significant factor shaping cognition about language learning, and this leads to the initial conceptualization of language teaching during teacher education by having a continuous influence on their professional lives.

Similarly, as a study investigating teacher cognition, the current study has also revealed 'prior language learning experiences' as a priori theme and as one of the main resources shaping formative assessment cognition. This theme has particularly focused on the participants' language learning histories in order to bring their past experiences to the level of conscious awareness and invoke their cognitions related to formative assessment. Under this theme, there occurred two main codes: 'teachers in the past' and 'assessment in the past'. Analysis of all participants' dataset including reflective journals, interviews, classroom observations (field notes), documents (lesson plans), pre- and post-observation conferences proceeded from specific codes into more general themes with consideration of the sociocultural resources mediating pre-service language teachers' formative assessment cognition. Borg (2004) stated that "student teachers arrive for their training courses having spent thousands of hours as school children observing and evaluating professionals in action" (p. 274). Based on this assertion, it would not be wrong to assume that pre-service language teachers' past experiences in language classroom might also have an influence on the way they think, believe, teach and use assessment, namely on their cognition. In this regard, the upcoming section of the current study explores this hypothesis by scrutinizing various datasets coming from the participant pre-service language teachers' practicum experiences. In the present study, the factors constituting participant pre-service language teachers' language learning histories are their previous encounters with their 'teachers in the past' and 'assessment in the past'. Accordingly, Table 8 below illustrates the sub-themes underlying the theme of 'prior language learning experiences' along with their frequency.

Table 8

'Prior Language Learning Experiences' As An Influential Factor In The Construction of Formative Assessment Teacher Cognition

Participants	Prior Language Learning Experiences					
	teachers in the past		assessment in the past		TOTAL	
	n	%	n	%	n	%
TT1	5	23.8	3	11.5	8	17.02
TT2	2	9.5	8	30.7	10	20.2
TT3	1	4.7	-	-	1	2.1
TT4	6	28.5	2	7.6	8	17.02
TT5	2	9.5	7	26.9	9	19.1
TT6	-	-	1	3.8	1	2.1
TT7	3	14.2	2	7.6	5	10.6
TT8	2	9.5	3	11.5	5	10.6
TOTAL	21	100	26	100	47	100

*'n' represents the number of each code that occurred in the dataset of the relevant participant trainee teacher

An inspection of the sub-themes underlying the theme of 'prior language learning experiences' showed that participant student teachers' construction of formative assessment cognition was mainly influenced by the sociocultural factors of 'teachers in the past' ($n = 21$) and 'assessment in the past' ($n = 26$). Participants' *perezhivanie* (lived experiences) and *obuchenie* (teaching/learning) revealed 'prior language learning experiences' ($n = 47$) as an effective factor shaping the construction of formative assessment cognition. The influence of the respective factors was especially observed in the datasets of some certain participants. For example, the code of 'teachers in the past' was common across all datasets including higher frequencies with TT1 ($n = 5$, 23.8%), TT4 ($n = 6$, 28.5%), and TT7 ($n = 3$, 14.2%). With the code 'assessment in the past', the analysis of past language learning experiences was deepened with fluctuating frequencies from TT2 with the highest frequency ($n = 8$, 30.7%) followed by TT5 ($n = 7$, 26.9%), TT1 and TT8, both with the same amounts of frequency ($n = 3$, 11.5%). When we look at the overall distribution of the frequencies among the participants regarding the theme of 'prior language learning experiences' ($n = 47$), some example distributions are as follows: TT2 ($n = 10$, 20.2%), TT5 ($n = 9$, 19.1%), TT1 ($n = 8$, 17.02%), and TT8 ($n = 5$, 10.6%).

In the upcoming sections, the theme of ‘prior language learning experiences’ is further elaborated on with the examples from the datasets of TT1, TT4, TT5, and TT2. The following parts will deepen into the data qualitatively by means of relevant excerpts and descriptions from datasets including interviews, classroom observations (field notes), documents (lesson plans), reflective journals, and pre- and post-observation conferences.

Teachers in the past. The analyses clearly revealed that the participants had teachers who influenced their attitudes towards language learning and language assessment either negatively or positively. For example, TT1 (Trainee Teacher 1), although she initially had positive feelings for learning a new language, developed negative feelings towards speaking in English in class because of the error correction style conducted by one of her English teachers in primary school. Because of her frustration, she turned into being a passive student in English classes and did not want to participate in the lessons:

“There was one teacher in primary school. In fact, my impression is that English language teachers are generally very cheerful, but this teacher was frowning all the time. She would never say a positive word about what we did. But, whenever we did something wrong or gave an incorrect answer, she would directly correct it word by word without any comment. She was just waiting for the mistakes coming out of our mouths. In her class, I was scared of pronouncing wrong or making a grammar mistake.” (TT1, Stage I, Interview 4)

“In fact, English was one of my favourite subjects, and being scared of something that you like was the thing making me sad. It was not English that I was scared of. It was that teacher. I still remember what I felt in those courses. I didn’t want to say a word in English because of her. I just wanted that year finish immediately. ... I still get nervous when I remember those classes. ... I believe this memory of that teacher affected me a lot, that’s why I get panic about how to correct a student when he makes a mistake. I am not sure. What if I offend him and cause him not to like English subject?” (TT1, Stage I, Interview 4)

This part of the interview conducted with TT1 clearly indicates that the negative attitude of her teacher and this teacher’s strict error correction and feedback style made TT1 question the error correction practices she came across during her teaching practices.

In her second teaching practice, TT1 designed a lesson based on the context of 'dream jobs' for seventh graders with the English proficiency level of A1 and A2. The aim of her lesson was to integrate writing and listening skills through various techniques such as brainstorming, comprehension questions, and listening for specific information. One of the tasks in this lesson was a writing activity about 'what students want to become when they grow up and why' (TT1, Stage II, Document Analysis 2). As she made clear in her reflective journal which was written after conducting above-described teaching practice, there were a lot of error correction and feedback opportunities, but TT1 avoided most of them by only focusing on following the procedures stated in her lesson plan (TT1, Stage II, Classroom Observation 2).

"Today, students made lots of errors. Almost all of their pronunciations were incorrect, which both attracted my attention and distracted me. I didn't intervene in most of them intentionally because I thought that I might offend them if I correct every word they utter. I didn't want them feel the same fear that I felt when I was a student. ... I want to become a good teacher and I know that if I don't correct those mistakes, they will be fossilized. In fact, they didn't learn or learnt in a wrong way, so I am really worried about how I must approach this issue. Therefore, when we look at KS3, I guess, I didn't provide the students with the feedback that moves them forward in this case." (TT1, Stage II, Reflective Journal 11)

As explained in the section for data collection tools in methodology chapter, the participant pre-service language teachers were asked to conduct a reflective writing on their formative classroom practices based on the framework developed by Wiliam and Thompson (2008) in stages II, III, IV, and V. In line with this, with KS3 (Key Strategy 3), TT1 refers to the framework that operationalizes the features of formative assessment in a unified way with an emphasis on learning and practical use of formative assessment (Wiliam & Thompson, *ibid.*). KS3 is about the teacher's 'providing feedback that moves learners forward', which TT1 preferred as the point to focus on in her reflection. Although she reveals that, by noticing students' errors, she got a clue about their learning, knowledge, and understanding with the statements "I know that if I don't correct those mistakes, they will be fossilized" or "they didn't learn or learnt in a wrong way", she is aware of the fact that she must do something about error correction and feedback so that she can contribute to their learning: "I didn't provide the students with the feedback that moves them forward

in this case” (TT1, Stage II, Reflective Journal 11). The reason for that she did not act on error correction and feedback when she consistently came across with student errors in language production in her second teaching practice may be originated from her prior encounters with the teacher-based assessment conducted by a teacher who held strict and negative attitudes of error correction and giving feedback. These negative past language learning experiences of TT1 created the fear of being corrected in English class, and these feelings are also reflected in her initial teaching practices with a rejection of correcting student mistakes and providing feedback. In this way, her previous encounter with teacher assessment as a language learner, a particular teacher in the past, may have shaped her initial language teacher cognition of formative assessment. By relating the concept of feedback to formative assessment, TT1 also manages to grasp one of the crucial strategies in learning-oriented assessment. In line with the interpretation of this finding, Pellegrino et al. (2001) highlighted on the importance of feedback in assisting student learning in learning-oriented assessment as it is “essential to guide, test, challenge, or redirect the learner’s thinking” (p. 234).

However, Can Daşkın (2017) also highlighted on the ‘active nature of formative assessment’ by propounding that this type of classroom-based assessment involves interpreting and acting upon the evidence of student learning (p. 5). Based on these criteria, TT1’s recognizing the problems in student learning and knowledge is just one step of a teacher’s attaining formative assessment skills. TT1 continues constructing her formative assessment cognition by referring to the same issue of error correction and teacher feedback in her post-observation conference with the teacher educator. During this post-observation conference, TT1 remarks on the excessive student errors in pronunciation and grammar and her not acting on it:

Extract 1. (TT1, Stage II, Post-OC 2)

- 01 TE: is there any part (.) that you did didn’t like about your lesson?
 02 TT1: er:: (.) well (.) I don’t think that my lesson was very bad [bu- but there is:]
 03 TE: [that’s right]
 04→ TT1: there are some parts I didn’t like
 05→ TE: for example?
 06→ TT1: for example er:: students did made a lot of mistakes (.) for example
 07 pronunciation and grammar (.)

- 08 TE: uh-hm
- 09→ TT1: and I didn't do anything (.) and er::m (.) I didn't correct them
- 10 TE: hmm
- 11→ TT1: I feel bad about this (.) and I don't know (.) sizce ne yapmalıyım bu konuda?
what should I do about this?
- 12→ TE: yeah this is (.) one of the things that I noticed (.) but we cannot correct
13→ everything that students say, right?
- 14 TT1: [uh-huh
- 15→ TE: [but of course there are things we can do
- 16→ TT1: I know that it is wa- şey waste of time if I correct everything (.) in fact
err
- 17 TE: uh-hm
- 18→ TT1: and- and this will make them feel bad (.) \$kalplerini kırarım herşeyi düzeltirsem\$
I will break their hearths if I correct everything

Extract 1 starts with the teacher educator's (TE) question about whether there is a part in TT1's lesson she did not like. Starting the slots with a question about the previously conducted lesson is one of the 'conversational ground rules' (Mercer, 2000) shaping and organizing the way the teacher educator and the participant trainee teachers interact as a typical case in the present dataset. As a shared understanding which governs the interaction, TE's use of a question at the beginning of the reflection session as a conversational ground rule creates space for interthinking (Line 01, 'is there any part (.) that you did didn't like about your lesson?'). On this question, TT1 briefly evaluates her lesson as being not too bad in Line 2. The hesitation for the positive evaluation of the lesson comes in the same line which overlaps with TE's approval and confirmation for the evaluation of the lesson as not very bad (Line 03, '[that's right]'). With Line 04, TT1's cognitive/emotional dissonance 'comes into being' (Johnson & Golombek, 2016) as a growth point through which she expresses her discontent with some parts of the lesson ('there are some parts I didn't like'). These growth points are contexts to create conditions for teacher learning and development with responsive mediation which is used by TE in Line 05 with a request for clarification. TE's request for clarification with 'for example?' and non-lexical tokens ('uh-hm' and 'hmm') in Lines 05, 08, and 10 encourage TT1 to tell what discomforts her. In Lines 06, 07, 09, and 11, TT1 explains the reason for her cognitive/emotional dissonance that although students made some errors frequently, she did not correct them and provide

feedback. In 'Stage I, Interview 4' and 'Stage II, Reflective Journal 11', TT1 revealed that her avoidance from correcting errors and giving feedback was caused by her prior language learning experiences which was shaped negatively because of a teacher's negative and strict assessment attitudes in the past. TT1 indicated this as one of the factors preventing her from implementing KS3 to perform a formative classroom practice (TT1, Stage II, Reflective Journal 11).

It might be inferred that TT1's *perezhivanie* (lived experiences, Vygotsky, 1987) shaped her initial cognitions related to formative assessment, and she did not act on it although she had noticed the problems with student learning and knowledge in her classroom practice. TT1 disambiguates her cognitive/emotional dissonance by uttering 'I didn't correct them' and 'I feel bad about this' in Lines 09 and 11 successively. Her emotionally indexing language in Extract 1 and her behaviour in her instructional activities (TT1, Stage II, Classroom Observation 2) clearly indicate these contradictions in her cognition and emotions. This inconsistency between what she believes, think, feel, and know about what she needs to do and what she did in her instructional activity was possibly influenced by a prior language learning experience - teachers in the past.

Next, in a growth point open to responsive mediation, TT1 solicits for explicit mediation from TE with a direct question: '*what should I do about this?*' (Line 11). After a confirmation for TT1's identification of absence for error correction and teacher feedback in her lesson ('yeah this is (.) one of the things that I noticed', Line 12), TE tries to form intersubjectivity: 'but we cannot correct everything that students say right?' with a confirmation check through a rhetorical question (Line 12 & 13), and gets a confirmation expression from TT1 ('uh-huh', Line 14), a realized attempt at following what TE is saying. However, in Line 15, the expert-novice nature of their exchange is observable in that TE attempts to focus TT1's thinking away from simply acknowledging the fact for 'we cannot correct everything that students say right?' and puts her expert stance by saying 'but of course there are things we can do'. Although, in Line 16, TT1 attunes with TE's utterance displayed in Lines 12 and 13, she is still under the influence of her *perezhivanie* (lived experiences, Vygotsky, 1987). Instead of focusing on the alternative instructional ways, she explicates her fear for offending the students with explicit error correction: '*I will break their hearths if I correct everything*' (Line, 18). With this, while TE and TT1 were engaging in

responsive mediation, another potential growth point emerged through their talking together because of TT1's cognitive/emotional dissonance. In addition, above-analyses demonstrate us that TT1's everyday concept of error correction and teacher feedback contradicts with the academic concept of teacher feedback in formative assessment (TT1, Stage I, Interview 4; Stage II, Reflective Journal 11; Stage II, Post-OC 2).

In the remainder of the previous extract, in Extract 2, TE and TT1 continue to preserve the IDZ which emerged in Extract 1.

Extract 2. (TT1, Stage II, Post-OC 2)

- 19→ TE: you'r right (.) well then what can we do in such situations? situations like this
20 TT1: er:: (.) yeah (.) we can correct the most risky (.) and bariz olanları
explicit ones
- 21 [open] ones
22 TE: [obvious] uh-hm (.) what else?
23 TT1: er:: what else
24→ TE: why do you think teacher feedback is important?
25→ TT1: because so that students can learn (.) or they will always make mistakes
26→ and (.) think that they learnt
27→ TE: uh-hm good (.) then what can we do to solve this problem (.)
28→ in your next lessons?
29→ TT1: as I said I can choose the worst errors
30→ TE: okay and we may also try that (.) take notes of the most frequent problems (.)
31→ the problematic ones (.) okay?
32 TT1: °okay°
33→ TE: and at the end of the lesson (.)
34→ you can give feedback to the whole class
35→ TT1: böylece tek bir öğrenciyeye odaklanmam
in this way, I won't focus on only one student
36→ TE: aynen öyle
that's right

In Line 19, TE first shows her agreement with inessentiality of correcting everything, then she directs a question with a reference to alternative solutions for error correction and teacher feedback. With this question, she makes a strategic choice to facilitate an explanation from TT1 and creates a joint mental activity by trying to identify if TT1 can articulate an alternative instructional response. TT1 provides her ideas in Line 20 by suggesting picking up the risky and obvious errors to correct. In

Line 22, TE provides an alternative word choice which TT1 was looking for to describe the types of errors she would correct, and TE continues to preserve the joint mental activity with another question directed to TT1, 'what else?'. By repeating the question, in Line 23, TT1 tries to gain space to think and create an alternative instructional response. In the following line, by "introducing elements of the task's solution" (Vygotsky, 1987, p. 209), TE directs another question to help TT1 find out alternative solutions and to keep her cognitively and emotionally attuned. With these questions, TE tries to elicit TT1's expert teacher thinking concerning what an appropriate instructional response could be.

With Lines 25 and 26, TT1 starts to develop her expert teacher thinking by providing reasoning for the use of teacher feedback. Her reasoning that feedback is important so that students can learn, and her explanations for this are also signs for her co-constructed formative assessment teacher cognition. Her judgements about the importance of teacher feedback in this extract are in line with her reflections in the interviews and reflective journals (TT1, Stage I, Interview 4; Stage II, Reflective Journal 11). In Lines 27 and 28, TE articulates her confirmation with 'uh-hm good (.)', and she again directs a question and solicits for alternative instructional responses by reinforcing interthinking and probably by expecting a more specific answer with an expert's notion from TT1 ('then what can we do to solve this problem (.) in your next lessons?'). With these questions, TE tries to smooth TT1's cognitive/emotional dissonance by helping her to develop expert teacher thinking and discover alternative instructional activities in responsive mediation. Reference to future activities ('in your next lessons?') by TE increases the potentiality of a learning-to-teach experience and shapes the construction of formative assessment cognition as a growth point for TT1. Furthermore, it signals for a potential development in TT1's formative assessment cognition if she can internalize these external forms of social interaction as a psychological tool.

However, in Line 29, TT1 repeats her previous answers ('as I said I can choose the worst errors'). With a confirmation ('okay'), TE stays attuned to TT1, but she also demonstrates the alternative instructional responses in an explicit way and makes her expert thinking transparent to orient TT1 to restructure her thinking about her instructional practice of error correction and teacher feedback (Lines 30 & 31, 'okay and we may also try that (.) take notes of the most frequent problems (.) the

problematic ones (.) okay?'). By using 'we' pronoun to indicate a shared experience of teaching practices during the practicum, TE also uses the low certainty modal of 'may' by staying cognitively and emotionally attuned to TT1. After TE's confirmation check in Line 31, TT1 attunes with a confirmation in reduced volume speech (Line 32). In Lines 33 and 34, TE continues her suggestion for an alternative instructional activity by actually voicing what TT1 could have said in more expert terms: 'and at the end of the lesson (.) you can give feedback to the whole class'. TT1 picks up TE's assistance in Line 35 and gains an increased sense of intersubjectivity concerning a more expert notion of error correction and teacher feedback and implicitly formative assessment (*'in this way, I won't focus on only one student'*), which is confronted by TE with a confirmation (*'that's right'*) as they stay attuned to each other.

In Extracts 1 and 2, in the discursive norms or conversational ground rules of trainer and trainee interaction, an IDZ was established through responsive mediation. TE and TT1 co-constructed the IDZ in response to repeated instances of cognitive/emotional dissonance TT1 experiences in terms of her prior language learning experiences and her concerns about enacting the pedagogical tool of error correction and giving feedback. It is also identified that rhetorical and direct questions helped TE to reveal the thoughts and feelings of TT1 about what is happening in her class. IDZ here helped TT1 to articulate these feelings and thoughts beyond what she can express alone. At the end, what TE and TT1 uncover is that TT1 attains a more increased sense of expert thinking about error correction and teacher feedback than her performance indicates. However, error correction and teacher feedback were taking part as everyday concepts in TT1's cognition rather than academic concepts which are intended to be turned into a psychological tool in her teacher cognition through mediation. For this, post-observation conference sessions served as an interpsychological plate, which through mediation, has the potential to turn external forms of social interaction into intrapsychological plate of TT1.

Accordingly, Extract 1 and 2 highlight the quality and character of the collaborative teaching/learning relationships (*obuchenie*) which unfolded throughout the Post-observation Conference 2. These extracts reveal that TE's support for TT1 to identify missed opportunities of error correction and teacher feedback and their

articulation of alternative instructional activities TT1 could have taken enabled TT1 to shape her teacher cognition in a more expert notion. TE encouraged TT1 to articulate her feelings, understandings, and evaluation of her instructional activities, which may create the potential to help TT1 to form her language teacher cognition of formative assessment and to interpret and act upon the evidence of student understanding and learning in her future teaching practices. This jointly constructed communicative space for interthinking helps the trainee teachers to reconstruct their lived experiences and helps to create conditions for the construction of language teacher cognition.

Like TT1, TT4 is another participant pre-service language teacher whose initial teacher cognition of formative assessment was shaped by her prior language learning experiences with some teachers in the past. TT4 has also negative experiences of English teachers whose attitudes towards teaching English, assessing English, and their implementations in language class formed as one of the resources influencing TT4's construction of formative assessment cognition. TT4 expresses her disappointment with the teachers' strict adherence to the textbook and their monotonous teaching styles:

“Our teachers generally used to follow the textbook strictly. They wouldn't do anything interesting. The only thing we tried to do was to complete the book. Therefore, the lessons were really boring.” (TT4, Stage I, Interview 1)

TT4's experiences of these monotonous teachers' classes made her also critique the mentor teacher's classroom practices during classroom observations. In the next excerpt from a reflective journal, TT4 expresses her frustration for observing the same teaching style she experienced as a language learner in the past. It might be inferred that TT4's prior language learning experiences with the teachers in the past urged her to question similar instructional practices conducted by the mentor teacher by considering their effects on student feelings and learning.

“Today, Cansu teacher (*pseudonym for the first mentor teacher*) only did the exercises in the book one by one. As far as I observed, the students got really bored. They just did the exercises one by one and wrote down the things on the board. ... I know how it feels because I experienced the same things when I was a student.” (TT4, Stage I, Reflective Journal 5)

In line with these, TT4's prior language learning experiences of teachers with monotonous teaching styles and her observations of similar instructional practices conducted by the mentor teacher shaped her initial teacher cognition and facilitated her to plan her third teaching practice on some certain criteria related to formative assessment.

Extract 3. (TT4, Stage III, Pre-OC 2)

- 01 TT4: Cansu teacher wanted me (.) use this reading passage (.) from the book
02 TE: okay (.) let me see it (.)
03 well okay you can design your lesson based on it
04 TT4: they studied the vo- words last week (.)
05 TE: it is good that (.) they studied the vocabulary items
06 TT4: [yeah
07 TE: [but (.) you may still need to make a vocab revision
08 TT4: °okay°
09 TE: as a pre-reading activity
10 TT4: pre-reading okay
11→ TE: and what are you planning for this reading passage?
12→ do you have anything in mind?
13→ TT4: şey, exercises in the book are really boring
err
14 TE: uh-hm
15→ TT4: ben onların yerinde olsam farklı birşeyler görmek isterdim
if I were in their shoes, I would want to see something different
16 TE: ne yapabiliriz sence ozaman?
then what do you think we can do?
17 what do you think?

((Upon this dialogue, TT4 and TE continue planning TT4's third teaching practice, and they work on the draft lesson plan prepared by TT4))

In Extract 3, with line 01, TT4 starts building on her lesson plan by introducing the reading passage which was specified as the core material required by the mentor teacher. In pre-observation conferences, trainee teachers' introducing the materials and the lesson plan that they are planning to use is a 'conversational ground rule' (Mercer, 2000) of these sessions. This serves as a typical case in the present data, which also creates space for interthinking. By introducing the material required by the mentor teacher, TT4 creates orientation to a future activity, her third teaching practice (Line 01, 'Cansu teacher wanted me (.) use this reading passage

(.) from the book'). By creating a mutual engagement with the material, TE briefly evaluates the presented material, and responds to what TT4 says with a confirmation in Lines 02 and 03, and she agrees on using this reading passage to design the next lesson.

In Line 04, TT4 brings an explanation that the mentor teacher taught, in the previous week, the vocabulary items which also take place in the reading passage that TT4 was planning to use. With this instructional information, TT4 continues to co-build the IDZ shaped by responsive mediation in which TE tries to facilitate TT4's expert teacher thinking. In this co-established IDZ, TE and TT4 stay attuned to each other's changing states of knowledge, understanding, and emotions during the pre-observation conference session. Accordingly, in Line 05, TE demonstrates her confirmation for what TT4 uttered in the previous line. In Line 06, TT4's confirmation overlaps with TE's elaboration on vocabulary teaching. Through this, TE makes her expert thinking transparent, and tries to draw TT4's attention into a shared understanding of the importance of pre-vocabulary teaching by warning TT4 about the possibility of the need for a vocabulary revision (Line 07, '[but (.) you may still need to make a vocab revision]'). TT4 takes TE's advice with a silent confirmation, "okay" in Line 8, and TE reformulates her utterance with 'as a pre-reading activity' in Line 09, which is confronted by TT4 with a repetition and confirmation (Line 10, 'pre-reading okay').

With Lines 11 and 12, TE uses explicit mediation and tries to awaken TT4's expert teacher thinking by asking direct questions, and she preserves the IDZ in which she orients TT4 to the plans for future activity ('and what are you planning for this reading passage?' & 'do you have anything in mind?'). TT4's cognitive/emotional dissonance comes into being, in Line 13, as a growth point in which she refers to her dissatisfaction with the boring exercises in the textbook ('exercises in the book are really boring'). After TE's non-lexical token in Line 14, TT4 expresses her cognitive/emotional dissonance with an assumption: '*if I were in their shoes, I would want to see something different*' (Line 15). Through responsive mediation, by trying to turn this growth point into a teacher learning opportunity, TE tries to elicit future activity plans from TT4 both by using 'we' statement to describe the significant aspects of their shared experiences of planning a lesson together and

by using direct questions in Lines 16 and 17 (*'then what do you think we can do?' and 'what do you think?'*).

The dissonance between what TT4 experienced in the past as a language learner and what she wants to do in her next teaching practices creates a potential growth point for TT4, which can be turned into a successful teaching practice and can mediate her cognition of formative classroom practices. Interview 1 and Reflective Journal 5 reveal that TT4's dissatisfaction for monotonous teaching style in which the teacher only follows the coursebook strictly and doesn't create an interesting classroom environment for learning is caused by her past experiences with language teachers as a language learner. It might be again inferred that TT4's *perezhivanie* (lived experiences) and *obuchenie* (teaching/learning) may have an influence on the construction of her initial teacher cognition. In that vein, her negative experiences of monotonous teachers in the past reinforce her to come up with alternative ideas to design her lesson by shaping it around a classic material from the textbook in a different and interesting way.

Accordingly, the signs of her formative assessment cognition under construction can be followed in her upcoming classroom practice and reflective journal. For her third teaching practice, TT4 designed a lesson around the theme of 'public buildings'. Her starting point was a reading passage from the coursebook, which was requested to be used by the mentor teacher. She structured her lesson around three main stages and integrated with other skills, starting with an activity for vocabulary revision, conducting a reading activity as the main stage, and ending the lesson with a pair-work speaking activity based on the same theme (TT4, Stage III, Document Analysis 3). Her main aim was to conduct a different and interesting lesson, which was intended to go beyond the boring exercises available in students' coursebook (TT4, Stage III, Pre-OC 2). During her teaching practice, TT4, after the main reading activity, started a pair-work activity for which she gave small pieces of paper with some questions on it to each partner. It was basically an information-gap activity in which each partner had different types of questions to ask and answer. During this activity, TT4 walked around the classroom, monitored the pairs, tried to answer students' questions, and repeated the instructions when necessary (TT4, Stage III, Classroom Observation 3). Upon this classroom practice, TT4 completed her reflective journal based on the key strategies related to the aspects of formative

assessment (William & Thompson, 2008; see Figure 3). At the beginning of her reflective writing, TT4 briefly summarizes her lesson and the learning tasks she conducted. Then, she starts explaining the relation of her instructional practices to one of the key strategies in the framework (KS2 - Engineering effective classroom discussions and other learning tasks that elicit evidence of student understanding):

“While using the reading passage from the book, I wanted to create a different activity on it. I didn’t want to use only the exercises in the book because they are boring for students. I observed that students generally tend to translate everything into Turkish. Actually, this is what Cansu Teacher wants. ... It was the same when I was a student. We used to translate every single word, and we only followed the exercises in our book. Nothing different now after those years. Therefore, I wanted to do something interesting. I wanted to create an effective classroom discussion with a different activity. ... During the activity, I walked around the classroom, I listened to the students and answered their questions. ... I saw that they still didn’t know the meanings of some words (for example: grocery, equipment, meeting). If I were their real teacher, I would focus on these words in the next lesson.” (TT4, Stage III, Reflective Journal 12)

Classroom observation, document analysis, and TT4’s reflections indicate that she adapted the material to create an effective activity for a pair-work. The main reason of this might be her prior language learning experiences caused by some teachers who strictly followed the coursebook and did not create an effective learning environment (TT4, Stage I, Interview 1; Stage I, Reflective Journal 5; Stage III, Pre-OC 2; Stage III, Reflective Journal 12). Getting out of the limitations of the coursebook and adapting the material enabled TT4 to elicit evidence about student knowledge and understanding. Based on the framework formed by William and Thompson (2008) to state the aspects of formative assessment, TT4 tried to engineer effective classroom discussion with a pair-work task that enabled her to understand where the learners are in their learning (“I saw that they still didn’t know the meanings of some words”; Stage III, Reflective Journal 12). Moreover, while monitoring the pair-work activity, TT4 also created opportunities for successful task accomplishment, and implicitly for student learning by providing feedback that moves learners forward as one of the prerequisites of formative classroom practice (TT4, Stage III, Classroom Observation 3). What is more important is the sign of her getting awareness about the knowledge and learning needs of the students. By

assessing students' current knowledge of related vocabulary in her monitoring and by planning for her students 'how to get there' (William & Thompson, 2008, p. 63), she presumably acts on this evidence in her vision: "If I were their real teacher, I would focus on these words in the next lesson" (TT4, Stage III, Reflective Journal 12). In her vision, she uses the evidence of student learning to adjust instruction to better meet students' learning needs as one of the principles of formative assessment (Black & Wiliam, 2009). Her statements, experiences, beliefs, thoughts, and reflections detected in above-stated datasets could be interpreted as that she is constructing her formative assessment cognition through her *perezhivanie* (lived experiences) and *obuchenie* (teaching/learning). Her prior experiences as a language learner with teachers in the past and her instructional practices have enabled TT4 to gain awareness about formative assessment by also shaping her teacher cognition. In this construction process, her formative assessment teacher cognition was influenced by certain factors, and it developed through reflection and responsive mediation. All these constructs shape her learning-to-teach process as being reflected in TT4's beliefs, thoughts, knowledge, feelings, and behaviours, namely her teacher cognition. Regarding her developing teacher cognition, she creates a consistency, rather than inconsistency, between what she believes and what she does by eliminating the dissonance between what she experienced in the past and what she feels and believes.

Assessment in the past. The second factor influencing the construction of formative assessment cognition, which occurred under the theme of prior language learning experiences is 'assessment in the past'. Participant pre-service language teachers' experiences of being assessed in language classroom and their previous language teachers' general assessment strategies are among the factors constituting their *perezhivanie* (lived experiences) and *obuchenie* (teaching/learning) while also shaping their formative assessment teacher cognition.

TT5 is one of the participants who experienced foreign language assessment anxiety in language classroom when he was a student in secondary school. He expresses his feelings for the anxiety of being assessed in those words:

"I loved English lessons, but I really hated pop-quizzes. They just made me nervous. Even if I knew the answer, I couldn't do it sometimes on the exam paper. Those exams just demotivated me. ... Our whole world was about the exams. We only

studied for the exams, and nothing more. I don't think that they really cared about what we learn and how we learn. The exam results were everything." (TT5, Stage I, Interview 1)

Under the influence of his past experiences with language assessment, TT5 observes the same anxiety among the students during his school experience observations.

"Last week, there was a general exam upcoming on Friday. I guess, the aim is to prepare students for high school entrance exams. During my classroom observations, I noticed that students were really stressful about these exams. Most of the students were studying something else and answering test questions on their desks while the teacher was doing exercises with a couple of students. Some of these tests were not even related to English subject. ... They were too nervous about the exam to concentrate on the lesson. Therefore, I started to question whether these exams are for learning or to stop learning?" (TT5, Stage I, Interview 2)

In his statements, TT5 refers to the anxiety and stress the exams create among students and how this situation impedes student learning. The exam, which TT5 mentions, is conducted city-wide at every secondary school at certain times generally for eight graders. With examples of students not focusing on the lesson but getting prepared for the upcoming exam, TT5 criticizes the negative effect created by the high-stakes exams. His own past experiences of foreign language assessment anxiety and his observations of a similar situation as a trainee create a cognitive/emotional dissonance in which his lived experiences and his professional observations contradict with what he believes in ideal. "We shouldn't arrange our teaching only based on the exams. We must know that exams do not result in learning every time" (TT5, Stage I, Interview 4). The negative feelings TT5 held for assessment in the past and his practicum observations of the same negative outcomes among the students at the host school might have been influential in shaping his formative assessment cognition as he demonstrates his reasoning for the negative effects of the exams and the formative assessment as an alternative instructional practice (TT5, Stage V, Interview 9).

"Thinking about formative assessment made me realize that we don't need exams all the time to understand what students know. Of course, exams are necessary, I cannot say that let's put them aside. But, we put too much pressure on students with these exams. The fear of exams limits their learning and motivation. ... We all had

this fear at some certain points for some courses, and unfortunately, we still experience it. ... But, I now also know that I can understand whether a student learnt something or not with a question at a critical point. ... This is what I noticed this year. We can make it a part of our teaching routine.” (TT5, Stage V, Interview 9)

By commenting on formative assessment, Ruiz-Primo (2011) put forward that “much of what teachers and students do in the classroom can be described as potential assessments that can provide evidence about the students’ level of understanding” (p. 15). Based on this statement, TT5’s thought for making formative assessment ‘a part of teaching routine’ is in alignment with the place of formative assessment in everyday classroom practice as indicated by Ruiz-Primo (ibid). While agreeing on the necessity of the exams, TT5 also critiques the negative effects of these exams on student feelings and motivation. By gaining a heightened sense of understanding concerning a more expert notion of formative assessment (“Thinking about formative assessment made me realize that we don’t need exams all the time to understand what students know”), TT5 reveals more about his growth points resolved out of his cognitive/emotional dissonances: “But, I now also know that I can understand whether a student learnt something or not with a question at a critical point” (TT5, Stage V, Interview 9). The everyday concept of negative effects of exams on student feelings and motivation in TT5’s cognition begins to turn into an academic concept with the mediation of formative assessment as a sociocultural resource in his cognition. Although his statements above potentially signal for his adoption of formative assessment as a psychological tool, his future instructional practices must be investigated to reveal profound data about his behaviours on this issue.

TT2 is another participant whose construction of formative assessment cognition was also affected by his prior assessment experiences. He, similar to TT5, also talks about the negative feelings and anxiety he held for language exams through his school years:

“... Although I was one of the successful students in the class, I was really scared of English exams. My exam results were not very bad in general, but anyway, I used to feel stressed.” (TT2, Stage I, Interview 1)

As someone who felt the exam pressure in English courses in the past, TT2 continues to connect his views on the negative effects of the exams on student feelings to his observations in his reflections:

“Cansu teacher always warns students like ‘This is probably going to be asked in the exam, so listen to me carefully!’ or ‘I am expecting you to score high in the exam!’ ... These are all exam-oriented expressions. To be honest, I believe that this makes students nervous. It is not motivating the students; they just study because they are scared [of the exams]. Instead of teaching in a way that makes students scared of exams, I mean, if we turn learning into something interesting and fun, the students will study in a more motivated way.” (TT2, Stage I, Reflective Journal 9)

The influence of his prior experiences and concerns about the negative effects of the exams on student feelings are mirrored in TT2’s instructional practices, which also shapes his construction of formative assessment cognition. For his second teaching practice, TT2 reveals his plans for a formal formative assessment activity in the pre-observation conference. Before the dialogue starts in Extract 4 below, TE and TT2 concentrate on the details of TT2’s upcoming teaching practice. TT2 introduces the materials and activities he is planning to use, and they co-construct an IDZ while designing the lesson. TT2 presents a listening passage which he plans to implement together with a mini-whiteboard activity. Mini-whiteboard activity is one of the activities demonstrated by the researcher while introducing formative assessment. With a brief introduction before Stage II, the researcher aimed to bring on the stage the alternative of classroom-based assessment practices which are conducted internal to the classroom by the teacher. Mini-whiteboard activity is a planned formative assessment activity that is used to elicit evidence of student understanding and achievement (William, 2011). It is implemented to reach the evidence of learners’ achievement from the entire class as all students write their responses on these mini-whiteboards and show it to the teacher. TT2 adapted this activity by using pieces of paper (a4) and marker pens (TT2, Stage II, Classroom Observation 2). After TT2 explains his plans for this activity in pre-observation conference, TE comes up with a question by building up on the IDZ co-constructed:

Extract 4. (TT2, Stage II, Pre-OC 1)

- 01→ TE: peki cevapların çoğu yanlış olursa ne yapmayı planlıyorsun?
well then, what are you planning to do if the answers are mostly wrong?
- 02→ TT2: doğru cevap veren öğrencilerden birine sorabilirim (.)

- I can ask one of the students who answered correct (.)*
- 03 TE: uh-hm
- 04 TT2: açıklaması için (.)
so s/he can explain (.)
- 05→ TE: olabilir (.) başka?
maybe (.) what else?
- 06 TT2: uhm (.)
- 07→ TE: hatanın çok yapıldığı kısmı tekrar dinletsen (.) mesela?
if you replay the part with the wrong answers (.) for example?
- 08 TT2: olabilir
yes maybe
- 09→ TE: cevabı kendilerinin bulmasını sağlayabilirsin
you can help ((the students)) find the answer on their own
- 10 TT4: hmm anladım (.) tamam
hmm I got it (.) okay

Upon their talk on the planning of mini-whiteboard activity, TE uses a direct question, in Extract 4, by maintaining joint communicative space for interthinking which was co-constructed on the foundations of shared knowledge and objective (Line 01, *'well then, what are you planning to do if the answers are mostly wrong?'*). TE's direct question to TT2 creates space for responsive mediation, which aims to encourage TT2 to articulate alternative instructional practices in case of coming across with a classroom moment in need of further feedback. This mediational space is meant to gauge whether TT2 can devise a response that aligns with providing feedback that moves learners forward (an important key strategy in formative assessment) without the cognitive demands of real-time activity of teaching. In Line 01, TT2 comes up with the solution of getting the explanation from the students who answered correctly. After TE's non-lexical token ('uh-hm') in Line 03 - a sign for that she is following, TT2 extends his statement with an explanation: *'so s/he can explain (.)'* (Line 04). In Line 05, TE first takes TT2's suggestion with a confirmation, and then again takes the responsibility of pushing TT2 beyond his current capability within the IDZ in the expectation of getting alternative solutions. TT2 takes time for thinking with a non-lexical token and pause in Line 06. With a rhetorical choice, TE puts her expert notion in an explicit mediation by trying to reinforce TT2's attunement in the IDZ: *'if you replay the part with the wrong answers (.) for example?'* (Line 07). After getting a brief confirmation from TT2, TE maintains her explicit mediation by providing reasoning for the alternative instructional practice

in Line 09. The sequence ends with TT2's claim of understanding (Sacks, 1992) and confirmation by exhibiting a sense of intersubjectivity.

In Extract 4, by creating orientation to a future activity, TE tries to demonstrate alternative instructional practices in case of student non-understanding. The sequence is important in understanding the role of TE in supporting TT2's identification of opportunities to provide feedback that moves learning forward, and then her articulation of alternative instructional actions TT2 can take during and after the implementation of planned formative assessment activity. Alternative instructional responses provided by TE and TT2 may address to TT2's growth point which occurred out of the cognitive/emotional dissonance between what he experienced in the past in terms of assessment, what he observed during the school experience, and what he believes. Through modelling expert thinking, TE's mediation has been responsive to TT2's cognitive and emotional needs as TE attempts to expand TT2's understanding of alternative instructional practices regarding teacher feedback and classroom assessment.

Regarding his beliefs about the negative effects of assessment on student feelings, his past experiences, and latest observations, TT2 designed a lesson including the implementation of a planned formative assessment activity, mini-whiteboards. The theme of his lesson was 'household chores' and the main activities were built on a listening passage. TT2 prepared some comprehension and true-false questions based on the listening passage and demonstrated these questions on the smart board one by one after students listened to the passage for two times by taking notes. Afterwards, TT2 distributed pieces of paper and marker pens so that each student could write her/his answer on it. TT2 instructed students to uphold their papers so that he could see their answers. It created a positive impact on the flow of the lesson as the students seemed quite eager and motivated to display their answers. In order to check students' answers, TT2 quickly walked between the rows of desks and appreciated students' answers with positive feedbacks like 'well done' and 'very good' (TT2, Stage II, Document Analysis 2, Classroom Observation 2).

Upon conducting this teaching practice, TT2 identifies his integral cognitive and emotional struggles through reflective journal and interview:

"I think, students shouldn't believe that exams are the only ways to be successful or to know something. ... Today, I did an activity that I liked very much and I enjoyed

it. I did this activity with the whole class to elicit evidence of student understanding. ... I wanted to focus on the part of “where the learner is right now” from the framework. I assessed students but the students didn’t get stressed while doing it.” (TT2, Stage II, Reflective Journal 11)

In his reflective writing, TT2 still refers to the pressure held by the exams on the students, which might be rooted in his negative assessment experiences in the past. Being content with the activity he conducted, he provides reasoning for his instructional practices by relating them to the framework for the aspects of formative assessment (William & Thompson, 2008) as he states the objectives as eliciting evidence of student understanding and recognizing where the learners are right now in their learning. At the end, he reveals his growth point and recognition that he carried out an assessment through an activity, and he did this in a student-friendly manner by eliminating stress from the learning environment. In line with this, in the interview conducted after his teaching practice, TT2 again expresses how the planned formative assessment activity helped him to assess student understanding and learning. After providing his reasoning and evaluation of the activity, he reconciles his instructional practices with his past experiences of assessment:

“I think this activity has been very beneficial for me. I hope it was also beneficial for the students. The time for our teaching practice is quite limited. If we give the answers one by one or if I put the answers on the board, I cannot follow, in a detailed way, who answers what and how. Therefore, this whole class activity helped me to briefly see whether everybody understood the listening passage or not. I think everybody enjoyed it, too. ...I wish our teachers did similar activities instead of solely scaring us with the upcoming exams.” (TT2, Stage II, Interview 6)

Through responsive mediation and reflective practice, TT2 has been able to transform his understanding of the everyday and academic concept of classroom assessment into the material activity of teaching with a planned formative assessment activity in his lesson plan and actual teaching. These practices helped TT2 to internalize the academic concept of ‘formative assessment’ as a psychological tool by regulating his teacher cognition. As Johnson and Golombek (2016) put forward, exposing teachers to relevant academic concepts throughout the teacher education will help them to internalize these concepts, and when internalized, this “will enable them to overcome their everyday notions, possible

misconceptions, of what it means to be a teacher, how to teach, and how to support student learning” (p. 5).

From TT2’s reflections in journals and interviews, responsive mediation and IDZ occurred during pre-observation conference, and his instructional actions in his teaching practice, it might be inferred that his negative assessment experiences in the past triggered TT2’s construction of formative assessment cognition, and he made the decision of implementing a planned formative assessment activity. The dissonance between what he felt and observed and what he believes, thinks, and knows has turned into a growth point, which created a consistency between what he believes and what he does. The IDZ co-constructed with TE enabled TT2 to put his beliefs into practice first in his lesson plan then in his teaching practice. IDZ, as a shared place for interthinking, also enabled TT2 to gain awareness for alternative instructional practices which may require further feedback that moves learners forward. As observed in his teaching practice, TT2 quickly replayed the parts answered incorrectly by the students, and he helped students to find the right answer by stopping the audio at certain places (TT2, Stage II, Classroom Observation 2) as suggested by TE in pre-observation conference. He also stated this as a possible solution against the anticipated problems in his lesson plan:

Anticipated problems: 1. Ss may not understand the listening passage and may not find the correct answers.

Possible solutions: 1. I will replay the audio so that Ss can listen to it again

(TT2, Stage II, Document Analysis 2)

TT2 attained this expert notion for providing extra feedback in the pre-observation conference. As an internalized psychological tool, he utilized formative assessment in his teaching practice in order to elicit evidence of student understanding and to see ‘where the learners are right now’. Through a planned formative assessment activity, he was able to elicit evidence of student learning and provide feedback that moves learners forward. He also could manage to activate students as the owners of their own learning by replaying the audio and letting students find the answer on their own with supportive feedback. His recognition of that students did not get stressed but enjoyed during this classroom assessment activity might have reinforced the development of his formative assessment cognition.

The findings related to the factor of 'assessment in the past' are also supported by the relevant literature which demonstrates the significance of past learning experiences of assessment practices in shaping language teachers' beliefs about assessment (e.g. Craig et al., 2013). According to Hatipoğlu (2016), "language teachers' experiences as testees shape their beliefs about assessment, inform their teaching and play a central role in how they plan and implement classroom assessment practices" (p. 136).

Overview of the construction process of formative assessment cognition regarding the factor of prior language learning experiences. As a section explaining the factors influencing participant pre-service teachers' construction of formative assessment cognition as followed in the above analyses, the present part of the findings chapter also indicates us the link between participants' construction of formative assessment cognition and the process of learning-to-teach. The factors influencing the construction of formative assessment cognition have been categorized with two codes under the theme of prior language learning experiences: 'teachers in the past' and 'assessment in the past'.

An overview of the findings regarding 'teachers in the past' as a factor influencing the construction of formative assessment cognition is provided in Table 9 below. The overview of the findings is presented with the examples from the datasets of the participants, TT1 and TT4. As indicated in Table 9, the code of 'teachers in the past' is encountered in the participants' reflections on past memories. For example, TT4 expresses her disappointment with the teachers' strict adherence to the textbook and their monotonous teaching styles ("They wouldn't do anything interesting. The only thing we tried to do was to complete the book"). Based on their past language learning experiences, they start critiquing the mentor teachers' instructional practices; for example, TT1 questions the error correction and feedback practices she came across during her teaching practices. Another significant part we come across with the code of 'teachers in the past' is the participants' reflections mediated by the teacher educator through pre- and post-observation conferences. For example, in one of these conferences, TT1 remarks on the excessive student errors in pronunciation and grammar during her teaching practice and her not acting on it, and she critically focuses on the alternative instructional practices for error correction and teacher feedback. Through her

reflections and practices, TT1 makes a connection to the aspects of formative assessment and reflects on her concerns for the missed opportunities of error correction and teacher feedback (“...when we look at KS3, I guess, I didn’t provide the students with the feedback that moves them forward in this case”). As differently, TT4, creates a consistency rather than inconsistency, between what she believes and what she does by eliminating the dissonance between what she experienced in the past and what she feels and believes. TT4 tries to engineer effective classroom discussion with a pair-work task that enables her to understand where the learners are in their learning. She gets out of the limitations of the coursebook and adapts the material and explains the relation of her instructional practices to one aspect of formative assessment (KS2).

Table 9

Overview of The Code ‘Teachers in The Past’ as A Factor Influencing the Construction of Formative Assessment Cognition

Participant	Theme	Code	Summary of Findings	Sample Excerpts
TT1	Prior Language Learning Experiences	Teachers in the past	<ul style="list-style-type: none"> - reflecting on past memories • initially having positive feelings for learning a new language • developing negative feelings towards speaking in English in class because of the error correction style conducted by one of the English teachers in primary school • turning into being a passive student in English classes and not wanting to participate in the lessons - the effects of the negative attitude of the teacher and this teacher’s strict error correction and feedback style on TT1 - questioning the error correction and feedback practices she came across during her teaching practices 	<p>- TT1, Stage I, Interview 4</p> <p><i>“whenever we did something wrong or gave an incorrect answer, she would directly correct it word by word without any comment”</i></p> <p><i>“She was just waiting for the mistakes coming out of our mouths”</i></p> <p><i>“In her class, I was scared of pronouncing wrong or making a grammar mistake”</i></p> <p><i>“I didn’t want to say a word in English because of her. I just wanted that year finish immediately”</i></p> <p><i>“I believe this memory of that teacher affected me a lot, that’s why I get panic about how to correct a student when he makes a mistake. I am not sure. What if I offend him and cause him not to like English subject?”</i></p>
TT1	Prior Language Learning Experiences	Teachers in the past	<ul style="list-style-type: none"> - the effects of past experiences on TT1’s instructional practices • despite excessive error correction and feedback opportunities, TT1’s avoidance of using these opportunities - reflecting on concerns for the missed opportunities of error correction and teacher feedback 	<p>- TT1, Stage II, Reflective Journal 11</p> <p><i>“Today, the students made lots of errors. Almost all of their pronunciations were incorrect, which both attracted my attention and distracted me. I didn’t intervene in most of them intentionally because I thought that I might offend them if I correct every word they utter”</i></p>

Participant	Theme	Code	Summary of Findings	Sample Excerpts
			- making connection to the aspects of formative assessment	<p><i>"I want to become a good teacher and I know that if I don't correct those mistakes, they will be fossilized. In fact, they didn't learn or learnt in a wrong way. I am really worried about how I must approach this issue"</i></p> <p><i>"...when we look at KS3, I guess, I didn't provide the students with the feedback that moves them forward in this case"</i></p>
TT1	Prior Language Learning Experiences	Teachers in the past	<p>- remarking on the excessive student errors in pronunciation and grammar and her not acting on it</p> <p>- critically focusing on alternative instructional practices for error correction and teacher feedback</p>	<p>- TT1, Stage II, Post-OC 2, Extract 1</p> <p><i>"students did- made a lot of mistakes"</i></p> <p><i>"and I didn't do anything (.) and er::m (.) I didn't correct them"</i></p> <p><i>"I feel bad about this (.) and I don't know (.) sizce ne yapmalıyım bu konuda? (What should I do about this?)"</i></p> <p>- TT1, Stage II, Post-OC 2, Extract 2</p> <p><i>"we can correct the most risky (.) and bariz olanları (explicit ones)"</i></p> <p><i>"choose the worst errors"</i></p>
TT4	Prior Language Learning Experiences	Teachers in the past	- expressing disappointment with the teachers' strict adherence to the textbook and their monotonous teaching styles	<p>- TT4, Stage I, Interview 1</p> <p><i>"Our teachers generally used to follow the textbook strictly"</i></p> <p><i>"They wouldn't do anything interesting. The only thing we tried to do was to complete the book"</i></p> <p><i>"Therefore, the lessons were really boring"</i></p>

Participant	Theme	Code	Summary of Findings	Sample Excerpts
TT4	Prior Language Learning Experiences	Teachers in the past	<ul style="list-style-type: none"> - critiquing the mentor teacher's classroom practices during classroom observations - expressing the frustration for observing the same teaching style she experienced as a language learner in the past - questioning similar instructional practices conducted by the mentor teacher by highlighting their effects on student feelings and learning 	<p>- TT4, Stage I, Reflective Journal 5</p> <p><i>"Today, Cansu teacher only did the exercises in the book one by one"</i></p> <p><i>"As far as I observed, the students got really bored. They just did the exercises one by one and wrote down the things on the board"</i></p> <p><i>"I know how it feels because I experienced the same things when I was a student"</i></p>
TT4	Prior Language Learning Experiences	Teachers in the past	<ul style="list-style-type: none"> - planning to design a lesson which will not be monotonous - negative experiences of monotonous teachers in the past reinforce her to come up with alternative ideas to design her lesson by shaping it around a classic material from the textbook in a different and interesting way 	<p>- TT4, Stage III, Pre-OC 2</p> <p><i>"exercises in the book are really boring"</i></p> <p><i>"ben onların yerinde olsam farklı birşeyler görmek isterdim (if I were in their shoes, I would want to see something different)"</i></p>
TT4	Prior Language Learning Experiences	Teachers in the past	<ul style="list-style-type: none"> - preserving the main aim to conduct a different and interesting lesson, which was intended to go beyond the boring exercises available in students' coursebook - adapting the material to create an effective activity for a pair-work 	<p>- TT4, Stage III, Document Analysis 3</p> <p>- TT4, Stage III, ClassroomObservation3</p>
TT4	Prior Language Learning Experiences	Teachers in the past	<ul style="list-style-type: none"> - preserving the main aim to conduct a different and interesting lesson, which was intended to go beyond the boring exercises available in students' coursebook 	<p>- TT4, Stage III, Reflective Journal 12</p> <p><i>"While using the reading passage from the book, I wanted to create a different activity on it. I didn't want to use only the exercises in the book because they are boring for students"</i></p>

Participant	Theme	Code	Summary of Findings	Sample Excerpts
			<ul style="list-style-type: none"> - making connections between her past language learning experiences and her practicum observations - explaining the relation of her instructional practices to KS2 - getting out of the limitations of the coursebook and adapting the material - trying to engineer effective classroom discussion with a pair-work task that enabled TT4 to understand where the learners are in their learning 	<p><i>"It was the same when I was a student. We used to translate every single word, and we only followed the exercises in our book. Nothing different now after those years"</i></p> <p><i>"I wanted to create an effective classroom discussion with a different activity"</i></p> <p><i>"I saw that they still didn't know the meanings of some words (for example: grocery, equipment, meeting). If I were their real teacher, I would focus on these words in the next lesson"</i></p>

Around the factor of 'teachers in the past', participants also went through a construction process regarding formative assessment teacher cognition. In this process, there occurred some major shifts around main stages: dissonance, exploration of teaching-related beliefs, self-examination, re-examination of alternatives, approval, and integration (see Table 6). The grounded content analysis and sociocultural discourse analysis indicated the extent to which participant pre-service teachers came to understand the concept of formative assessment and actually attempted to implement it in their instructional practices. The construction process was not linear, and it occurred around the main factors forming participants' teacher cognition. It should also be noted that not every participant followed the same steps in the same order nor do all participants experienced all these processes in the same amounts as it is demonstrated with the examples of TT1 and TT4 in Table 10 below.

In order to exemplify the participants' developments in micro units of major shifts, TT1's major shifts in the construction of formative assessment cognition will be explained around the factor of 'teachers in the past'. Analysis of TT1's dataset including reflective journals, interviews, classroom observations (field notes), documents (lesson plans), pre- and post-observation conferences proceeded from specific themes into more general categories with consideration of TT1's changes in formative assessment cognition over time around the factor of 'teachers in the past'. In particular, coding and analysing TT1's data over time helped to trace her cognitive construction of the concepts related to formative assessment and also to reveal various individual, social, and contextual factors influential on this construction process. At different stages of construction process, TT1 raises her awareness through the dissonances between what she feels, believes and what she experiences. It can be claimed that TT1's cognition construction begins through these dissonances in which she continuously refers to her past language learning experiences as not a perfect model. She expresses the negative effects of the attitude of an English teacher and this teacher's strict error correction and feedback style on TT1's instructional practices, and so TT1 questions the error correction and feedback practices she came across during her observation as a sign of her increasing awareness (Stage I, Interview 4). This dissonance again manifests itself when TT1 feels confused about implementing error correction and teacher feedback

because of her concern for hurting students' feelings (Stage II, Post-OC 2, Extract 1). By starting to turn her awareness into understanding, TT1 starts to self-examine her own beliefs, knowledge, and practices. For example, she reflects on her concerns for the missed opportunities of error correction and teacher feedback in her last teaching practice, and she makes a connection to one aspect of formative assessment by evaluating the conducted lesson within the perspective of KS3, which helps her to develop a critical eye on her own formative classroom practices (Stage II, Reflective Journal 11; Stage II, Post-OC 2, Extract 1). Throughout the process, TT1 undertakes re-examination of alternatives by looking for alternative ways of conducting error correction and teacher feedback, by critically focusing on alternative instructional practices, and by coming up with ideas for alternative instructional practices (though perceived as inadequate by TE) (Stage II, Post-OC 2, Extract 1 & 2). Through increased awareness and understanding, TT1 develops an approval in understanding the reasons behind using effective error correction and teacher feedback. She starts to develop expert justification for the implementation of alternative practice and gains an increased sense of intersubjectivity concerning a more expert notion of error correction and teacher feedback and implicitly formative assessment (Stage II, Post-OC 2, Extract 2). For an overview of the major shifts in the construction process of formative assessment cognition regarding 'prior language learning experiences', see Table 10 below.

Table 10

*Overview of the Construction Process of Formative Assessment Cognition
Regarding 'Teachers in The Past'*

Participant: TT1	
Theme: Prior Language Learning Experiences	
Code: Teachers in the past	

TT1-Major Shift 1	<ul style="list-style-type: none">- dissonance - Stage I, Interview 4• past language learning experiences not as a perfect model• negative effects of the attitude of the teacher and this teacher's strict error correction and feedback style on TT1's instructional practices• questioning the error correction and feedback practices she came across during her teaching practices <ul style="list-style-type: none">- dissonance - Stage II, Post-OC 2, Extract 1• feeling confused about implementing error correction and teacher feedback because of the concern for hurting students' feelings
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TT1-Major Shift 2	<ul style="list-style-type: none">- self-examination - Stage II, Reflective Journal 11• avoidance of taking action despite excessive error correction and feedback opportunities• reflecting on concerns for the missed opportunities of error correction and teacher feedback <ul style="list-style-type: none">- self-examination - Stage II, Post-OC 2, Extract 1• remarking on the excessive student errors in pronunciation and grammar and not acting on it• expressing feelings for the flaws in teaching practice
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TT1-Major Shift 3	<ul style="list-style-type: none">- re-examination of alternatives - Stage II, Post-OC 2, Extract 1• looking for alternative ways of conducting error correction and teacher feedback• critically focusing on alternative instructional practices <ul style="list-style-type: none">- re-examination of alternatives - Stage II, Post-OC 2, Extract 2• coming up with ideas for alternative instructional practices
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TT1-Major Shift 4	<ul style="list-style-type: none">- approval - Stage II, Post-OC 2, Extract 2• examining the reasons behind using effective error correction and teacher feedback
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-
- developing expert teacher thinking by providing reasoning for the use of teacher feedback
 - (upon TE's explicit mediation) agreeing on an alternative practice for error correction and teacher feedback
 - providing justification for the implementation of alternative practice
 - gaining an increased sense of intersubjectivity concerning a more expert notion of error correction and teacher feedback and implicitly formative assessment
- approval - Stage II, Reflective Journal 11
- making connection to the aspects of formative assessment
 - evaluating the conducted lesson within the perspective of KS3
 - developing a critical eye on her own formative classroom practices
-

Participant: TT4

Theme: Prior Language Learning Experiences

Code: Teachers in the past

- TT4-Major Shift 1
- dissonance - Stage I, Interview 1
 - past language learning experiences not as a perfect model
- dissonance - Stage I, Reflective Journal 5
 - expressing the frustration for observing the same teaching style she experienced as a language learner in the past
 - questioning similar instructional practices conducted by the mentor teacher by highlighting their effects on student feelings and learning
- dissonance - Stage III, Pre-OC 2
 - expressing dissatisfaction with the boring exercises in the textbook
- dissonance - Stage III, Reflective Journal 12
 - making connections between her past language learning experiences and her practicum observations
-

- TT4-Major Shift 2
- re-examination of alternatives - Stage III, Pre-OC 2
 - critically focusing on alternative instructional practices that will foster effective learning environment
- re-examination of alternatives - Stage III, Document Analysis 3 & Stage III, Classroom Observation 3
 - planning and implementing a course of action to create an interesting lesson
-

TT4-Major
Shift 3

- approval - Stage III, Reflective Journal 12
- explaining the relation of her instructional practices to KS2
- preserving the main aim to conduct a different and interesting lesson, which was intended to go beyond the boring exercises available in students' coursebook
- getting out of the limitations of the coursebook and adapting the material
- trying to engineer effective classroom discussion with a pair-work task that enabled TT4 to understand where the learners are in their learning

Upon the examples for the construction process of formative assessment teacher cognition around the factor of 'teachers in the past' from the datasets of TT1 and TT4, Table 11 below illustrates the trajectory of construction process for all participants.

Table 11

The Construction Process of Formative Assessment Teacher Cognition Around the Factor of 'Teachers in the Past'

	dissonance	exploration of teaching-related beliefs	self-examination	re-examination of alternatives	approval	integration
TT1	√	-	√	√	√	-
TT2	√	-	√	-	-	-
TT3	-	√	-	-	-	-
TT4	√	-	-	√	√	-
TT5	-	√	√	-	-	-
TT6	-	-	-	-	-	-
TT7	√	-	-	-	√	-
TT8	-	√	√	-	-	-
TOTAL	4	3	4	2	3	-

Table 11 indicates us that the construction process of formative assessment cognition followed a certain trajectory for the participants under the influence of their

previous experiences with 'teachers in the past'. For example, TT6's construction of teacher cognition did not proceed around the factor of 'teachers in the past' as it was not an influential factor shaping pre-service language teacher cognition in TT6's dataset. By looking at the overall distribution in the process of construction in Table 11, it is clearly seen that participants shaped their language teacher cognition by experiencing emotional and cognitive dissonances ($f = 4$) in which they also discovered the contradictions between what they believe and what they do. They also shaped this cognition with self-examination ($f = 4$) of their own practices, observations, and beliefs. They further contributed to the construction process of formative assessment cognition with 'exploration of teaching related beliefs' ($f = 3$), 'approval' ($f = 3$) of classroom-based assessment, and 're-examination of alternatives' ($f = 2$) in practices and beliefs.

The second factor influencing the construction of formative assessment cognition, which occurred under the theme of prior language learning experiences is 'assessment in the past'. Participant pre-service language teachers' experiences of being assessed in language classroom and their previous language teachers' general assessment strategies are among the factors constituting their *perezhivanie* (lived experiences) and *obuchenie* (teaching/learning) while also shaping their formative assessment teacher cognition. An overview of the findings regarding 'assessment in the past' as a factor influencing the construction of formative assessment cognition is provided in Table 12 below with the examples from the datasets of the participants, TT5 and TT2. As indicated in the table, the code of 'assessment in the past' is encountered in the participants' statements on the memories of being assessed in the past. TT5 expresses his feelings for the anxiety of being assessed by telling his experiences with the pop-quizzes, while TT2 talks about the stress he held for the English exams ("Although I was one of the successful students in the class, I was really scared of English exams. My exam results were not very bad in general, but anyway, I used to feel stressed"). Agitated by their past assessment experiences, TT2 and TT5 refer to the anxiety and stress the exams create among students and how this situation impedes student learning, and they criticize the negative effect created by the high-stakes exams. At this point, the participants get into a cognitive/emotional dissonance in which their lived experiences and their professional observations contradict with what they believe in

ideal. Accordingly, TT5 shapes his formative assessment cognition as he demonstrates his reasoning for the negative effects of the exams and the formative assessment as an alternative instructional practice (“Thinking about formative assessment made me realize that we don’t need exams all the time to understand what students know”). Likewise, by turning his beliefs and feelings about assessment in language classroom into an action plan, TT2 makes deliberate planning on formative assessment and conducts a planned formative assessment activity (mini-whiteboards) and uses it to elicit evidence of student understanding and achievement. After his implementation, TT2 manages to explain the relation of his instructional practice to formative assessment, and he highlights on how the planned formative assessment activity helped him to assess student understanding and learning.

Table 12

Overview of The Code ‘Assessment in The Past’ as A Factor Influencing the Construction of Formative Assessment Cognition

Participant	Theme	Code	Summary of Findings	Sample Excerpts
TT5	Prior Language Learning Experiences	Assessment in the past	<ul style="list-style-type: none"> - experiencing foreign language assessment anxiety in language classroom - expressing his feelings for the anxiety of being assessed 	<p>- TT5, Stage I, Interview 1</p> <p><i>“I loved English lessons, but I really hated pop-quizzes. They just made me nervous”</i></p> <p><i>“Even if I knew the answer, I couldn’t do it sometimes on the exam paper. Those exams just demotivated me”</i></p> <p><i>“I don’t think that they really cared about what we learn and how we learn. The exam results were everything”</i></p>
TT5	Prior Language Learning Experiences	Assessment in the past	<ul style="list-style-type: none"> - observing the same anxiety among the students during his school experience observations under the influence of his past experiences with language assessment - referring to the anxiety and stress the exams create among students and how this situation impedes student learning - criticizing the negative effect created by the high-stakes exams 	<p>- TT5, Stage I, Interview 2</p> <p><i>“During my classroom observations, I noticed that students were really stressful about these exams. Most of the students were studying something else and answering test questions on their desks while the teacher was doing exercises with a couple of students”</i></p> <p><i>“I started to question whether these exams are for learning or to stop learning?”</i></p>

Participant	Theme	Code	Summary of Findings	Sample Excerpts
TT5	Prior Language Learning Experiences	Assessment in the past	- getting into a cognitive/emotional dissonance in which his lived experiences and his professional observations contradict with what he believes in ideal	- TT5, Stage I, Interview 4 <i>"We shouldn't arrange our teaching only based on the exams. We must know that exams do not result in learning every time"</i>
TT5	Prior Language Learning Experiences	Assessment in the past	- shaping his formative assessment cognition as he demonstrates his reasoning for the negative effects of the exams and formative assessment as an alternative instructional practice	- TT5, Stage V, Interview 9 <i>"Thinking about formative assessment made me realize that we don't need exams all the time to understand what students know"</i> <i>"The fear of exams limits their learning and motivation"</i> <i>"We all had this fear at some certain points for some courses, and unfortunately, we still experience it"</i> <i>"But, I now also know that I can understand whether a student learnt something or not with a question at a critical point"</i>
TT2	Prior Language Learning Experiences	Assessment in the past	- talking about the negative feelings and anxiety he held for language exams through his school years	- TT2, Stage I, Interview 1 <i>"Although I was one of the successful students in the class, I was really scared of English exams. My exam results were not very bad in general, but anyway, I used to feel stressed"</i>
TT2	Prior Language Learning Experiences	Assessment in the past	- connecting his views on the negative effects of the exams on student feelings to his observations in his reflections	- TT2, Stage I, Reflective Journal 9 <i>"Cansu teacher always warns students like 'This is probably going to be asked in the exam, so</i>

Participant	Theme	Code	Summary of Findings	Sample Excerpts
				<p><i>listen to me carefully!’ or ‘I am expecting you to score high in the exam!’”</i></p> <p><i>“I believe that this makes students nervous. It is not motivating the students; they just study because they are scared [of the exams]”</i></p> <p><i>“if we turn learning into something interesting and fun, the students will study in a more motivated way”</i></p>
TT2	Prior Language Learning Experiences	Assessment in the past	- revealing his plans for a formal formative assessment activity in the pre-observation conference	- TT2, Stage II, Pre-OC 1
TT2	Prior Language Learning Experiences	Assessment in the past	- implementing a planned formative assessment activity (mini-whiteboards) that is used to elicit evidence of student understanding and achievement	- TT2, Stage II, Document Analysis 2 - TT2, Stage II, Classroom Observation 2
TT2	Prior Language Learning Experiences	Assessment in the past	- explaining the relation of his instructional practice to formative assessment	- TT2, Stage II, Reflective Journal 11 <i>“I wanted to focus on the part of “where the learner is right now” from the framework. I assessed students but the students didn’t get stressed while doing it”</i>
TT2	Prior Language Learning Experiences	Assessment in the past	- expressing how the planned formative assessment activity helped him to assess student understanding and learning - reconciling his instructional practices with his past experiences of assessment	- TT2, Stage II, Interview 6 <i>“this whole class activity helped me to briefly see whether everybody understood the listening passage or not. I think everybody enjoyed it, too”</i> <i>“I wish our teachers did similar activities instead of solely scaring us with the upcoming exams”</i>

Upon appointing 'assessment in the past' as an influential factor in the construction of formative assessment teacher cognition in the datasets of TT5 and TT2, the construction process of their teacher cognition was also scrutinized. For example, TT5's major shifts regarding the factor of 'assessment in the past' were observed only in two stages. TT5's awareness starts with his dissonance in which his lived experiences and his professional observations contradict with what he believes in ideal. Through reflection and his observations, it turns into an approval, as he shapes his formative assessment cognition through demonstrating his reasoning for the negative effects of the exams and the formative assessment as an alternative instructional practice. At the end of this process, TT5 demonstrates further engagement with the idea of formative assessment as he expresses his agreement on using formative assessment to assess student understanding and learning ("But, I now also know that I can understand whether a student learnt something or not with a question at a critical point").

In contrast to TT5's construction process, TT2's stages regarding 'assessment in the past' include a larger spectrum of major shifts. TT2's awareness starts with his revealing the negative feelings and anxiety he held for language exams through his school years ("Although I was one of the successful students in the class, I was really scared of English exams"). Throughout the process, TT2 appeals back to his dissonance by reconciling his instructional practices with his past experiences of assessment (TT2, Stage II, Interview 6). With an increased understanding, TT2 re-examines the alternative instructional practices for formative assessment, and he expresses how the planned formative assessment activity helped him to assess student understanding and learning ("this whole class activity helped me to briefly see whether everybody understood the listening passage or not. I think everybody enjoyed it, too"). While engaging in deliberate planning of formative assessment practices in pre-observation conferences, TT2 also demonstrates (in his reflective writing) his agreement on the usefulness of formative assessment, and he expresses competence and confidence in using formative assessment to assess student understanding and learning ("I wanted to focus on the part of "where the learner is right now" from the framework. I assessed students but the students didn't get stressed while doing it"). At the end of this construction process, we witness TT2's integration of formative assessment in his instructional

practices as he conducts a planned formative assessment activity (mini-whiteboards) that is used to elicit evidence of student understanding and achievement (TT2, Stage II, Document Analysis 2, Classroom Observation 2). For an overview of construction process of formative assessment cognition regarding the factor of ‘assessment in the past’, please see Table 13 below.

Table 13

Overview of the Construction Process of Formative Assessment Cognition Regarding ‘Assessment in The Past’

Participant: TT5	
Theme: Prior Language Learning Experiences	
Code: Assessment in the past	

TT5-Major Shift 1	<ul style="list-style-type: none"> - dissonance - Stage I, Interview 1 <ul style="list-style-type: none"> • experiencing foreign language assessment anxiety in language classroom despite motivation for learning English - dissonance - Stage I, Interview 2 <ul style="list-style-type: none"> • observing the same anxiety among the students during his school experience observations under the influence of his past experiences with language assessment • criticizing the negative effect created by the high-stakes exams - dissonance - Stage I, Interview 4 <ul style="list-style-type: none"> • getting into a cognitive/emotional dissonance in which his lived experiences and his professional observations contradict with what he believes in ideal
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TT5-Major Shift 2	<ul style="list-style-type: none"> - approval - Stage V, Interview 9 <ul style="list-style-type: none"> • shaping his formative assessment cognition as he demonstrates his reasoning for the negative effects of the exams and the formative assessment as an alternative instructional practice • expressing agreement on the use of formative assessment to assess student understanding and learning
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Participant: TT2

Theme: Prior Language Learning Experiences

Code: Assessment in the past

	<ul style="list-style-type: none">- dissonance - Stage I, Interview 1• talking about the negative feelings and anxiety he held for language exams through his school years
TT2-Major Shift 1	<ul style="list-style-type: none">- dissonance - Stage I, Reflective Journal 9• connecting his views on the negative effects of the exams on student feelings to his observations in his reflections <ul style="list-style-type: none">- dissonance - Stage II, Interview 6• reconciling his instructional practices with his past experiences of assessment
TT2-Major Shift 2	<ul style="list-style-type: none">- re-examination of alternatives - Stage II, Interview 6• pondering on the alternative instructional practices to conduct formative assessment
TT2-Major Shift 3	<ul style="list-style-type: none">- approval - Stage II, Reflective Journal 11• expressing how the planned formative assessment activity helped him to assess student understanding and learning• explaining the relation of his instructional practice to formative assessment
TT2-Major Shift 4	<ul style="list-style-type: none">- integration - Stage II, Reflective Journal 11• reflecting on deliberate planning of formative assessment practices• evaluating his implementation of a formal formative assessment activity <ul style="list-style-type: none">- integration - Stage II, Document Analysis 2, Classroom Observation 2• implementing a planned formative assessment activity (mini-whiteboards) that is used to elicit evidence of student understanding and achievement

Table 13 above provided specific examples for TT5 and TT2's construction process of formative assessment teacher cognition around the factor of 'assessment in the past'. In order to display a more general picture for this process, Table 14 below shows the trajectory of construction process for all participants.

Table 14

The Construction Process of Formative Assessment Teacher Cognition Around the Factor of 'Assessment in the Past'

	dissonance	exploration of teaching-related beliefs	self-examination	re-examination of alternatives	approval	integration
TT1	√	√	-	√	-	-
TT2	√	-	-	√	√	√
TT3	-	-	-	-	-	-
TT4	√	√	-	-	-	-
TT5	√	-	-	-	√	-
TT6	√	√	√	-	-	-
TT7	√	√	-	√	-	-
TT8	√	√	-	-	-	-
TOTAL	7	5	1	3	2	1

Table 14 sheds light on the formation of formative assessment cognition shaped by the factor of 'assessment in the past'. It is seen that this factor was not effective in TT3's cognition construction process, so she did not experience any major shifts regarding the comprehension of formative assessment around the code of 'assessment in the past'. When we inspect the overall distribution for the major shifts, the table reveals that participants experienced mostly 'dissonances' ($f = 7$) while trying to internalize the concept of formative assessment. This is followed by their 'exploration of teaching related beliefs' ($f = 5$). With these two steps, participants gain a heightened sense of awareness regarding formative classroom practices. With 'self-examination' ($f = 1$) of their own practices and experiences, and with 're-examination of alternative' ($f = 3$) instructional practices, their cognition regarding formative assessment reaches to a more fully awareness stage. By engaging with the idea of implementing formative classroom practices as an alternative classroom-based assessment, some participants shape their cognition further (approval, $f = 2$). One of the participants (TT2) manages to integrate

formative assessment into his instructional practices successfully as he implements a planned formative assessment activity (mini-whiteboards) that is used to elicit evidence of student understanding and achievement. This integration was probably initiated by his reconciliation on his own instructional practices with his past experiences of assessment (TT2, Stage II, Interview 6).

Teacher education. Related literature presents conflicting results regarding the impact of teacher education programmes on the construction of language teacher cognition as indicated in the chapter for literature review. While some of these studies report the contribution of teacher education programmes to pre-service and in-service teachers' cognitive development, some others exemplify the programmes which do not have significant effects on teachers' already existing beliefs. However, for Johnson (2015), teacher education provides systematic instruction for learning-to-teach process, and teachers, in teacher education, "overcome their everyday notions of what it means to be a teacher, how to teach, and how to support student learning" (p. 517). According to Li (2020), micro-teaching and the practicum have an important role in supporting pre-service teacher development. These two components of teacher education are the most important means to provide opportunities for reflection to connect theory and practice for pre-service teachers. Therefore, the current provision of teacher education programmes has a crucial role of influencing pre-service teachers' beliefs by offering the appropriate conditions for experientially linking theory and practice (Borg, 2015; Borg, Birello, Civera & Zanatta, 2014). In addition to pre-service teachers' previously established pedagogical beliefs (e.g. how languages are learnt or how they should be taught), pre-service teacher training is another critical point for teacher development as a space with influence on teachers' (de)construction of their visions and identities of being a teacher. It also affects prospective teachers' development and change in their beliefs and knowledge regarding language teaching and learning (Li, 2020). In challenging evidence that teacher education has little impact on teacher cognition development, the current section of the findings chapter aims to present teacher education as one of the factors influencing the construction of formative assessment teacher cognition. It scrutinizes the theme of teacher education with a specific emphasis on the 'courses in teacher education'. When pre-service teachers gain new insights into teaching and learning through courses, teacher educators, and the teaching practices and when they realise alternative

pedagogical ideas like formative assessment, they explore ways to re-imagine and reconstruct their teacher cognition, although each of them has particular reasons to develop and make the change.

Courses in teacher education. In Turkish EFL context, a body of specialised academic knowledge is offered to student teachers, which typically contains lecture-based courses on language awareness, teaching methodology, and second language acquisition in addition to educational sciences and literature. The aim of the field-based courses is to expose prospective language teachers to the theories of teaching and learning and the language systems and knowledge. They are also provided with a historical and critical view of language teaching methodology. Student teachers are expected to apply the theoretical components of these courses in classrooms during micro-teachings and teaching practice. Courses in teacher education are spaces embedding the normative ways of receiving professional credentialing by offering opportunities to pre-service teachers in shaping the complex ways in which they come to think about themselves as teachers, their future students, the activities of L2 teaching, and the processes of L2 teaching and learning. In the present study, various angles of the data analysis revealed that ‘courses in teacher education’ is one of the resources which has an impact on the construction and development of pre-service language teachers’ formative assessment cognition, and this code was examined with two main angles: ‘teaching-related courses’ and ‘micro-teaching’. Based on ‘courses in teacher education’ as a main factor influencing language teacher cognition, Table 15 below displays the frequencies for ‘teaching related courses’ and ‘micro-teaching’. In the table, ‘n’ represents the number of each code that occurred in the dataset of the relevant participant trainee teacher. The codes were counted as valid if there was a connection between the code and the participant’s formative assessment cognition. In the analysis, with ‘teaching-related courses’, it is referred to the courses including the content of the skills, theory, and methodology of English language teaching and learning, and the label of ‘micro-teachings’ is used to refer to the simulated teaching practices conducted as a part of some certain courses like methodology and teaching English to young learners. These micro teaching practices are usually conducted with small groups of 4 or 5 and aim to develop a repertoire of teaching skills through practicing, observing, critically reflecting upon and analysing their own and their peers’ teaching, guided by the teacher educators.

Table 15

'Teacher Education' As An Influential Factor In The Construction of Formative Assessment Teacher Cognition

Participants	Teacher Education					
	Courses in teacher education					
	teaching-related courses		micro-teaching		TOTAL	
	n	%	n	%	n	%
TT1	6	14.6	3	15.7	9	15
TT2	4	9.7	7	36.8	11	18.3
TT3	4	9.7	3	15.7	7	11.6
TT4	5	12.1	-	-	5	8.3
TT5	6	14.6	-	-	6	10
TT6	3	7.3	1	5.2	4	6.6
TT7	5	12.1	3	15.7	8	13.3
TT8	8	19.5	2	10.5	10	16.6
TOTAL	41	100	19	100	60	100

*'n' represents the number of each code that occurred in the dataset of the relevant participant trainee teacher

An examination of frequency distributions for the codes gathering under the theme of 'teacher education' indicated that 'teaching-related courses' ($n = 41$) as a sociocultural factor was more effective than 'micro-teachings' ($n = 19$) in the construction process of participant trainee teachers' cognitions regarding formative assessment. The analyses revealed 'courses in teacher education' ($n = 60$) as an influential factor shaping pre-service language teacher cognition common across the case. For example, the factor of 'teaching-related courses' expands throughout the case as indicated in the datasets of all participants including TT8 ($n = 8, 19.5\%$), TT5 ($n = 6, 14.6\%$), TT4 ($n = 5, 12.1\%$), TT3 ($n = 4, 9.7\%$), TT6 ($n = 3, 7.3\%$). Likewise, 'micro-teachings' was detected as another effective factor in the participants' datasets: TT2 ($n = 7, 36.8\%$), TT7 ($n = 3, 15.7\%$), TT3 ($n = 3, 15.7\%$), and TT6 ($n = 1, 5.2\%$). When we analyse the overall distribution of the frequencies among the participants regarding the factor of 'courses in teacher education' ($n = 60$), some example distributions are as follows: TT2 ($n = 11, 18.3\%$), TT8 ($n = 10, 16.6\%$), TT1 ($n = 9, 15\%$), TT7 ($n = 8, 13.3\%$), TT4 ($n = 5, 8.3\%$), and TT6 ($n = 4, 6.6\%$). In the upcoming sections, the factor of 'courses in teacher education' is examined in detail with the examples from the datasets of TT1, TT8, and TT2. In the

following parts, the analysis will be enhanced qualitatively by means of relevant excerpts and descriptions from datasets including interviews, classroom observations (field notes), documents (lesson plans), reflective journals, and pre- and post-observation conferences.

Teaching-related courses. TT1 is one of the participant pre-service teachers who attach importance to the courses in teacher education while getting specialised on their future profession. TT1 believes that the contents of the courses form the initial steps of being a good language teacher: “We need these courses to learn how to become a good English teacher” (TT1, Stage I, Interview 1). She expresses her content with the initial courses because these courses helped her to improve her English language proficiency and gain a perspective of how to become a better language learner.

“The courses like reading, writing, listening that we took in our first year helped me to improve my English which I found very inadequate at those times because we used to study English with multiple-choice test questions [at the high school]. Therefore, unfortunately, I had severe problems with skills like speaking and writing. ... I enjoyed a lot in these courses [in the initial years of teacher education] and learnt lots of things. While studying for these courses, I tried to improve my perspective of how a student learns English better and studies for it.” (TT1, Stage I, Interview 1)

TT1 also notifies that some of the content courses like literature and linguistics contributed to her intellectually, but they were not related with English teaching and were too detailed as being unnecessary to some extent: “Yes, I learnt a lot of interesting things in courses like literature and linguistics, but I don’t think that I will use this knowledge when I become a teacher” (TT1, Stage I, Interview 1). In opposite to her ideas for literature- and linguistics-oriented courses, TT1 states the importance of teaching-related courses in building her expertise by expressing that courses like approaches, methodology, and teaching English to young learners were quite beneficial, and she loved to attend those courses:

“I think that I learnt about teaching in courses like approaches, methodology and young learners. These courses were extremely useful for me. ... We learnt how to teach English and how to teach different skills in different contexts. We learnt how to design a lesson and activities to support our students’ learning. Most importantly, in these courses, I always compared how I learnt English and how I must teach it.” (TT1, Stage I, Interview 1)

During another interview, TT1 again talks about the influence of teaching-related courses on shaping her pedagogical knowledge. Upon being asked about the specific contributions of these courses to her teaching practices as a prospective teacher, TT1 gives the example of a methodology lesson in which they watched a sample recording of a teaching practice in one of the sessions, and they evaluated the teaching performance as a whole class (TT1, Stage I, Interview 5).

“We talked about what was good and what was bad about that lesson, and it turned out to be an ineffective lesson. When our instructor asked about the teachers’ instructions, I understood the place of instructions in an activity.” (TT1, Stage I, Interview 5)

A whole class discussion in a methodology course over the analysis of a recorded classroom practice triggered TT1’s awareness for the importance of teacher instructions in conducting a successful task. Supported by the input coming from the methodology courses, TT1’s classroom observations, at some point, focused on the mentor teacher’s instruction giving, and she reflected on it:

“This week, we were supposed to observe a group work. Cansu teacher does not normally have group works because of student noises. ... As we asked for one, she agreed on, and in that way, we had a chance to observe her group-work activity. ... Cansu teacher explained the activity, but the students didn’t understand it. They just kept asking what they were going to do throughout the activity, so there was chaos. ... In methodology courses, we always kept saying: Tell students what to do before putting them into groups, and give clear instructions! This helps to keep the discipline.” (TT1, Stage I, Reflective Journal 8)

When we look at TT1’s reflection, it might not be wrong to claim the effects of teaching-related courses on her formation of language teacher cognition. She expresses her awareness for the importance of instruction-giving in the interviews and her reflective writing. In line with this recognition, she disambiguates her understanding of this pedagogical knowledge with a self-examination in a post-observation conference. In this slot of the post observation conference (Extract 5), TE and TT1 talks about a problematic task in which the students got confused about what to do. Upon agreeing on the problem in the execution of the task, TT1 reveals her self-examination at the beginning of Extract 5:

Extract 5. (TT1, Stage III, Post-OC 3)

- 01 TT1: I couldn't explain what to do in any way
02 TE: why do you think they didn't understand what to do?
03→ TT1: they weren't listening (.) or I couldn't explain (.)
04 I don't know
05→ TE: yeah (.) if the students aren't listening (.)
06 then it gets really difficult well to tell something (.)
07 to teach [something
08 TT1: [maalesef
unfortunately
09 TE: and what do you think?
10→ what can we do (.) to solve this problem then?
11 TT1: err:: I can repeat my instructions
12 TE: uh-huh (.) yes it's one alternative
13→ TT1: in fact (.) I try it (.) I mean I repeat the important parts
14 before the task (.) during the task
15 but while doing it I get err:: confused
16 and so they get confused =
17 TE: =okay (.) have you tried writing your instructions on a piece of paper
18 and check it?
19 TT1: no (.) but but I think (.) it will err::
20 TE: distract you?
21 TT1: yes hmm (.) yes

In Extract 5, we can see that TT1 starts to examine her instructional practice by also revealing her awareness of the problem in her instruction-giving for the task. She notifies her effort in trying to explain what students were supposed to do in Line 01 ('I couldn't explain what to do in any way'). With this self-examination in Line 01, TT1 uses the space in responsive mediation. In Line 02, by extending the IDZ, TE directs a question in soliciting for TT1's opinion about the possible reasons of unsuccessful instruction-giving and students' off task behaviours as a result of it ('why do you think they didn't understand what to do?'). With this question, TE again sets a conversational ground rule which is typical in the present data collection: TE directs a question to elicit the reasons of the problem or alternative instructional practices from the trainee teachers when there is a noticed flaw in trainees' practices. TT1 comes up with two possible reasons in Line 03, which is followed by TT1's hesitation marker in the next line ('they weren't listening (.) or I couldn't explain (.) I don't know'). In Lines 05, 06, and 07, TE validates the difficulty of this situation

by downplaying her own expertise ('yeah (.) if the students aren't listening (.) then it gets really difficult well to tell something (.) to teach [something']), which is overlapped by TT1's confirmation in Line 08. Consistent with the developing IDZ, TE orients TT1 to alternative solutions and instructional practices with explicit questions to elicit knowledge (Lines 09 & 10). In this way, TE guides the joint construction of knowledge, and she seeks, by questioning, to draw TT1 into a shared understanding of alternative instructional practices for teacher instructions. In Line 11, TT1 orients to TE's mediation and provides an alternative solution, 'err:: I can repeat my instructions', which is confronted first by TE's back-channel acknowledgement token, and then an explicit confirmation. In the following next four lines, we again witness TT1's self-examination of her previous instructional practices and her unsuccessful attempts with the repetition of the instructions. Her emotionally indexing language and her self-examination indicate that although TT1 attempted to use an alternative way of giving clear instructions, she still struggles for finding a better alternative. In Lines 17 and 18, TE provides another solution for TT1's struggle with instruction-giving. TE suggests TT1 to write the instructions on a piece of paper to check in due course as TT1 claims that she gets confused while giving instructions. Here, TE scaffolds TT1's perceived negative experiences with instruction-giving by orienting her to future alternative practices. However, in Line 19, TT1 demonstrates her hesitation for this idea as she agrees on that this will distract her in Line 21. Although TE and TT1 create a communicative space for interthinking, they cannot reach a solution in the above-demonstrated slot in Extract 5. However, towards the end of the conference, for the next teaching practices, TE and TT1 together decide on putting the instructions on the power point slide in bullets so that TT1 can transfer the instructions to the students without getting confused. Moreover, they agree on that if the students see what they are supposed to do on the board before the task starts and during the task, they will understand the aims of the task and know what is expected from them (TT1, Stage III, Post-OC 3).

In a sense, we can claim that the IDZ and responsive mediation provided a space for TT1 to make the abstract knowledge ('importance of teacher instructions' originating from a teaching-related course) concrete – for example, 'in fact (.) I try it (.) I mean I repeat the important parts before the task (.) during the task but while

doing it I get err:: confused' (Lines 13, 14, 15, & 16), and it becomes realistic as it harbours the opportunities for implementing alternative instructional practices. Extract 5 reveals the significance of the effect of teaching-related courses which emerged from the data regarding the courses in teacher education, and it, in essence, addresses how TT1's cognition developed in teacher learning. Therefore, after trainee teachers receive and appropriate input during a course, they may encounter with some conflicts between what they think, believe, feel, know and what they do. However, this may turn into a possible growth point within their ZPD. With appropriate support and scaffolding, they can better utilise the perceived negative experience.

We can follow TT1's internalization of the scaffolded solutions for teacher instructions in her next classroom practice in which she demonstrates the instructions for a group work on the power point slide as co-decided with TE in the previous post-observation conference (TT1, Stage IV, Classroom Observation 4). TT1 designs her fourth teaching practice around the theme of 'public places', and she tries to connect the theme to real life by preparing a pair work activity with a speaking task framed around a map of the neighbourhood where most of the students reside, which is followed by discussion questions to be answered by the pairs (TT1, Stage IV, Document Analysis 4). TT1 states the aim of this activity as:

"To be able to link the symbols of public places with their names through the numbers given. The aim is to make sure students can use this activity in real life. The students should be able to write the numbers of the symbols next to the names of public places they can see on the map. The map will be from where they locally live so it's authentic and relatable for them. After I make this point of the activity clear I will ask the students to take a look at the questions on the board and go through the meanings of the questions together. Lastly I will ask them to discuss these questions with their pairs after they complete the first part of the activity." (TT1, Stage IV, Document Analysis 4)

As an internalized academic concept, teacher instructions are elaborated on by TT1 in her lesson preparation while she was presuming on the anticipated problems and the possible solutions for these problems:

Anticipated problems: 4. The map activity can be a bit difficult or confusing for the students.

Possible solutions: 4. I will first clearly explain what I want the students to do, followed by an example demonstration. I will put the instructions on PPT so that Ss can follow me. Throughout the activity I will stroll around the class to take any questions from the students to clear any confusion.

(TT1, Stage IV, Document Analysis 4)

TT1, later on, picks up the instruction-giving sequences as a point to discuss in her reflective writing. She reflects on whether she could integrate formative assessment into the teaching and learning process in her last teaching practice by referring to the KS1 (William & Thompson, 2008):

“For this lesson I designed an interesting activity, and I tried to connect the topic with the real life. ... Since the students aren’t used to pair work or group work activities, the task was a bit confusing for them. So, I wanted to give clear instructions so that students can understand what they are supposed to do. Firstly, I put the task instructions on PPT. In this way, it was easier for me to give the instructions without skipping any step. And, it was easier for the students to follow. In case of that they wouldn’t understand what to do, I demonstrated the first example to clear any confusion. With these, I believe that I could manage to clarify learning intentions and criteria for success [KS1]. After I gave the instructions and when they started working on their maps, I could see that they mostly understood the aim of the task.” (TT1, Stage IV, Reflective Journal 13)

TT1 connects the practice of her successful instruction-giving to implementing one of the key strategies of formative assessment in her reflective journal. Although she does not relate this connection to the pedagogical knowledge she acquired in a methodology course, we cannot deny ‘the effects of teaching-relating courses’ on the way she perceives teacher instructions and her classroom practices, which, in the end, helps her to notice the place of an important aspect of formative assessment (KS1) in her latest teaching practice. A course in teacher education helps her to place pedagogical knowledge of teacher instructions as an academic concept. Through observing others’ classroom practices, she starts to internalize this academic concept by building on the notion that teacher instructions are important for a successful task completion. By self-examining her own instructional practices in IDZ, she notices a perceived flaw in her instruction-giving skills, which creates a contradiction between what she thinks, believes, knows, feels, and what she does. However, through responsive mediation, these contradictions are turned

into potential growth points by TT1 and TE. By building on these growth points, TT1 manages to internalize the concept as a psychological tool, which is evidenced in the trajectory of her next lesson preparation documents, classroom practices, and reflections (TT1, Stage IV, Document Analysis 4, Classroom Observation 4, and Reflective Journal 13).

In supporting the present results regarding teachers' instruction-giving, a recent study conducted by Somuncu and Sert (2019) investigated EFL trainee teachers' orientations to learners' non-understanding which occurs during task instructions. The results of their study demonstrated that learners' displays of non-understanding in instruction-giving sequences create space for teachers to ensure clarity because learners' understanding of these instructions are essential for successful task accomplishment. Trainee teachers in their study applied to different sources like multimodal explanations or modelling in order to make instructions clear and turn learners' non-understanding into understanding. However, the study also reported the cases with trainee teachers' lack of or limited orientations to non-understanding in instruction-giving sequences. By looking at two sides of the coin, the study argued integrating management of non-understanding in these sequences into teacher education curriculum as it holds an important place in increasing opportunities for student learning. With a similar perspective, in the present study, the analysis of TT1's dataset may reveal implications for understanding the place of teacher instructions in the implementation of formative assessment in terms of clarifying learning intentions and criteria for success (KS1).

TT8 is another participant pre-service language teacher whose development of formative assessment teacher cognition has been influenced by the factor of 'courses in teacher education'. In the trajectory of TT8's construction of teacher cognition, the effects of teaching-related courses are observable. Similar to TT1, TT8 also thinks that initial courses based on language skills at the beginning of their teacher education were useful for the betterment of her language proficiency before learning how to teach English. She believes in the importance of literature courses in developing her intellectual capacity, but she does not relate these benefits to language teaching (TT8, Stage I, Interview 1). However, TT8 prioritizes teaching-related courses as the most effective components of her teacher education: "Although most of them contain only theoretical knowledge, I think that we acquired

the most beneficial and important knowledge related to English teaching from courses like methodology and teaching skills” (TT8, Stage I, Interview 1). In the same interview, she states that she could not have learnt the nuances of language teaching without paying attention to the contents of the teaching-related courses. When she was asked to elaborate on the specific pedagogical knowledge that she attained in these courses, TT8 highlighted the importance of interaction and group work, which were emphasized critically while they were discussing communicative approaches in one of the teaching-related courses (TT8, Stage I, Interview 1).

“We especially focused on the place of interaction in a language classroom. For example, in TBLT [task-based language teaching] and CLT [communicative language teaching], I saw the importance of pair-work and group-work to foster interaction. ... These courses helped me to learn how to design a pair-work or group-work.” (TT8, Stage I, Interview 1)

For her second teaching practice, TT8 seemed to be determined to design an interactive lesson as it was observed in the pre-observation conference. In this conference, TT8 unveils her discovery of contradictions between what she believes, knows and what she observes. Through this awareness, she also develops her understanding of formative classroom practice by referring to the key strategies that she intends to implement in her next teaching practice. Upon TE’s question about what kind of a lesson she is planning for her next teaching practice, TT8 starts to reveal her core aim for lesson planning:

Extract 6. (TT8, Stage II, Pre-OC 1)

- 01 TT8: in fact what I wanna do is to have an interactive lesson (.)
02 öğrenciler derse katılsın ve iletişime geçsin istiyorum
I want students to participate and get into communication
03 TE: uh-hm
04→ TT8: I want it (.) I want it to be like task-based or CLT
05 TE: nice (.) well then you’re planning to have some communicative tasks
06 TT8: yes
07 TE: do you have anything specific in mind?
08 TT8: hmm şey (.)
err
09→ aslında öğrenciler communicative task'lara pek alışık değiller
in fact, the students are not used to communicative tasks
10 normalde genelde hani kitaptaki alıştırmaları yapıyorlar

- 11 *they normally and generally follow the exercises in the book*
ya da test çözüyorlar
or having multiple-item tests
- 12 TE: [unfortunately
- 13→ TT8: [bir de şunu düşündüm hani formative assessment framework'ündeki
14 stratejilerden de gerçekleştiririm böylece
and I thought that, in this way, I will conduct some of the strategies
from the formative assessment framework
- 15 TE: hangileri mesela?
which ones, for example?
- 16→ TT8: err:: dördüncü ve beşinci
 the fourth and the fifth
- 17 TE: let me see it (.) uh-hm you are right
- 18 TT8: değil mi?
 isn't it?
- 19 TE: evet evet
 yes yes

((Upon this dialogue, TT8 and TE continue planning TT8's teaching practice, and they talk about the materials and the activities))

Extract 6 starts with TT8's mutual orientation to the planning of her next teaching practice (Line 01) upon TE's question about what kind of a lesson she is planning for her next teaching practice, and TT8 reveals her main aim in the planning and delivery of this lesson (Line 02, '*I want students to participate and get into communication*'). In this way, TT8 takes her part in the joint communicative space for interthinking. TE confronts this with a non-lexical token ('uh-hm') in Line 03 by indicating that she follows TT8. In Line 04, TT8 continues describing the course that she visions ('I want it (.) I want it to be like task based or CLT'). With this description, TT8 reveals her expert notion of an interactive lesson by relating it to the task-based language teaching and communicative language teaching. Starting with an appreciation, TE elaborates on TT8's plans for an interactive lesson, 'nice (.) well then you're planning to have some communicative tasks' (Line 05) and gets a confirmation from TT8 in Line 06. With the elaboration in Line 05, TE forms the IDZ in which they get attuned to each other's changing states of knowledge, understanding, and emotions. With Line 07, TE directs a question ('do you have anything specific in mind?') by trying to unveil TT8's expert teacher thinking concerning communicative language teaching. Vygotsky (1987) exemplified the

leading questions among the strategies that more expert-others can mediate learner activity in ZPD.

Starting from Line 09, TT8 reveals her cognitive/emotional dissonance which is caused by what she observes during regular classes at the host school and also what she aims to accomplish as a communicative lesson in ideal (Lines 09, 10, & 11). In this slot of the IDZ, TT8 expresses her concerns for students' unfamiliarity with the communicative tasks as they are taught with more classical methods, and this dissonance forms a potential growth point for TT8. In Line 12, TE takes TT8's elucidation with confirmation in an emotional alignment ('[unfortunately]'). In the next lines, TT8 relates the aim of her instructional practices to the aspects of formative assessment in the framework proposed by Wiliam and Thompson (2008) ('*and I thought that, in this way, I will conduct some of the strategies from the formative assessment framework*'). With this recognition of formative assessment as connected to the aims of her course plans, TT8 demonstrates her engagement with the idea of implementing formative classroom practices. Within the IDZ, in Line 15, TE creates the space to address immediate needs and concerns of TT8 and pushes her beyond her current capabilities with a referential question ('*which ones, for example?*'). TT8's answer comes as '*the fourth and the fifth*' in Line 16 by referring to the key strategies, KS4 and KS5. In Line 17, TE requests to see the framework in order to check the key strategies TT8 mentions and confirms TT8's reasoning ('let me see it (.) uh-hm you are right'). However, in Line 18, TT8 again solicits for confirmation ('*isn't it?*') and gets another confirmation from TE in Line 19 ('yes yes').

In Extract 6, we can observe that responsive mediation is emergent, dynamic, and contingent on the interactions between TE and TT8. TT8's cognition related to communicative language teaching and formative assessment is provoked when TE and TT8 are attempting to accomplish a joint understanding for TT8's upcoming teaching practice. Throughout the responsive mediation, TE and TT8 are very active in both explicit (i.e., asking for confirmation or further explanation) and implicit (i.e., expression of concerns) ways, which shapes the quality and character of the mediation that emerges during the interaction between the trainee teacher and the teacher educator.

The analysis of TT8's dataset reveals that teaching-related courses in teacher education constitute an influential factor in constructing her language

teacher cognition about formative assessment as these courses shape TT8's *perezhivanie* (lived experiences) and *obuchenie* (teaching/learning). Under the influence of the knowledge she attained from teaching-related courses, TT8 relates her interactive course planning to the implementation of KS4 (activating students as instructional resources for one another) and KS5 (activating students as the owners of their own learning). The importance of the student agency in formative assessment practices was also mentioned by Rea-Dickins (2001) who described engaging students in the classroom interaction through self- and peer-monitoring as a sign of good assessment for learning practice for teachers. When it is thought that one of the main principles of communicative approach is 'engaging students in communicative tasks', TT8's relating this main principle to KS4 and KS5 might be a sign of her increased understanding of the concept of formative assessment.

After her teaching practice, TT8 further shapes her formative assessment cognition. In her second teaching practice, TT8 designs a communicative lesson around the theme of 'dream jobs' for seventh graders with the English proficiency level of A1 and A2. TT8 stated one of the aims of the lesson as "By the end of the lesson, the students will have practised speaking by focusing on oral fluency while using Wh- questions and describing the pictures in the context of 'dream jobs'" (TT8, Stage II, Document Analysis 2). In order to accomplish this main aim, TT8 conducted a group work activity as the last step of her classroom practice. During her teaching practice, it was observed that she had difficulties in managing the group work activity. Students' discipline problems interrupted the flow of her activities, and she frequently switched to Turkish to explain the activity and manage the class (TT8, Stage II, Classroom Observation 2). After conducting this teaching practice, TT8 reflected on her communicative task and the implementation of KS4 and KS5:

"In this lesson, I tried to do the things that I learnt in our courses, and I wanted to focus on the importance of group work and interaction. Unfortunately, it didn't go well as I expected. But, at least, I tried. I tried to carry out key strategy 4 [KS4] and key strategy 5 [KS5]. ... To be honest, using communicative approach or the things like formative assessment in these classes with these students is very difficult. I don't know how I can do it." (TT8, Stage II, Reflective Journal 11)

The trajectory of TT8's dataset under this micro-unit of analysis indicates that TT8's lesson planning and formative assessment cognition were shaped by the factor of

'courses in teacher education', and we can especially follow the signs for 'the effects of teaching-related courses'. However, it must be reinstated that TT8's instant engagement with the concept of formative assessment in her first pre-observation conference might be because of the recent intervention which aimed to provide the participants with theoretical and practical knowledge of formative assessment. The fresh knowledge she attained from the sessions on formative assessment and the framework that they were supposed to use for their reflective journals might have urged TT8 to integrate this recently updated knowledge into her course planning. However, as it is clearly seen in Reflective Journal 11, there occurred an inconsistency between what TT8 planned and did. Although she still remains her heightened awareness and understanding of formative classroom practice, she also puts emphasis on the difficulty of implementing formative assessment. Her discovery of a cognitive/emotional dissonance between what she planned and what she could do might play as a potential growth point for TT8's construction of formative assessment cognition.

Micro-teachings. In teacher education, in addition to the theoretical input, student teachers are also required to engage in some micro-teaching sessions as a part of some certain courses like methodology and teaching English to young learners. These micro teaching practices are usually conducted with small groups of 4 or 5 and aim to develop a repertoire of teaching skills through observing, critically reflecting upon and analysing their own and their peers' teaching, guided by the teacher educators. Student teachers are also supposed to provide a comprehensive lesson plan for their micro-teaching practices. With the micro-teachings, it is aimed to provide student teachers with a simulated feeling for teaching and apply what they learn in a real-life situation in their future profession as the main aim is to facilitate the integration of theory and practice. Therefore, the participants' experiences of micro-teachings as part of courses in teacher education constitute an important factor shaping language teacher cognition in the present study.

Accordingly, TT2's experiences and perceptions of micro-teachings canalized him to form a connection with his developing formative assessment teacher cognition. In one of his interview excerpts, TT2 classifies micro-teachings as an opportunity to turn theory into practice (TT2, Stage I, Interview 5). However,

he also concentrates on the differences between the simulation of micro-teachings and real teaching practices during practicum:

“In micro-teachings, we didn’t have real students. Our friends were our students. Maybe because of this, I focused on myself not on the students. For example, I tried to fulfil the principles of total physical response. ... But now, there are real students in front of me. And, I always keep asking myself whether they understand me right now or am I speaking nonsense? I’m having such kind of thoughts while teaching. Am I talking too fast or is my English too advanced for them? ... It is true that I learnt a lot from my micro-teachings. But, unfortunately, they were not real and now we have real students in real classrooms. I think this is a huge difference.” (TT2, Stage I, Interview 5)

For his fourth teaching practice, TT2 designs a lesson around the theme of extreme sports. The lesson aims to make students familiar with ‘expressing preferences’ and ‘giving explanations/reasons’ by making comparisons between extreme sports around a reading passage about skydiving (TT2, Stage IV, Document Analysis 4). For the last stage of his lesson, he designs a speaking activity around a poster preparation and presentation about extreme sports. However, he could not start this last activity as allocated time for the teaching practice ended (TT2, Stage IV, Classroom Observation 4). TT2 explains the reason of his not being able to cover the whole lesson plan and leaving the last speaking activity out in Interview 8:

“In fact, I did a very similar activity in one of my micro-teachings last year. The theme was different, but the activity design was very similar. And, if it had been a micro-teaching again, I would have probably finished all the activities. ... Since the students didn’t understand the reading passage, they asked a lot of questions and got distracted. And I had to revise the vocabulary items taught by their teachers in the previous weeks so that they could understand the passage. ... This was not I was planning for.” (TT2, Stage IV, Interview 8)

TT2’s self-examination of his teaching practice indicates us that he is aware of the differences between the teaching practices in the context of a teacher education course (micro-teachings) and the authentic classroom atmosphere during the practicum. His awareness of the discrepancy between the implementations in micro-teachings and in reality orients him further in shaping his language teacher cognition about formative assessment.

Another critical point detected in classroom observation was TT2's unconscious use of informal formative assessment by referring to a past learning event conducted by the mentor teacher ("Do you remember the word 'challenging'? Cansu teacher showed it. Remember?"). What makes it a formative assessment practice is TT2's reference to a previously taught event, and TT2's extending the ongoing instructional activity with this reference (see Can Daşkın & Hatipoğlu, 2019). Reference to a past learning event "creates an 'assessment opportunity' (Rea-Dickins, 2001, p. 437) by extending what is made available in the material and changing the trajectory and the form of the ongoing activity to target an expression previously studied" (Can Daşkın & Hatipoğlu, 2019, pp. 5-6). Although the present study does not discursively focus on the analysis of classroom interaction, it might be claimed that, throughout the case, participant pre-service language teachers' references to a past learning event is generally limited with the reference to what the mentor teacher taught previously in contrast to an in-service teacher teaching a regular class as the cases in Can Daşkın and Hatipoğlu's (2019) study. However, this point for the instructional practice of informal formative assessment as reference to a past learning event was only paid attention to by TT2 or TE with a general sense of teacher explanation and clarification during post-observation conference in TT2's dataset.

On the same teaching practice, TT2 and TE pursue a post-observation conference, and TT2 reveals his concerns for the perceived flaws in his teaching practice, and he speculates on the possible reasons of this perceived flaw. Upon TE's question about what TT2 thinks about his lesson, Line 01 starts with TT2's comments on his time management as he could not cover the last speaking activity in the lesson plan.

Extract 7. (TT2, Stage IV, Post-OC 4)

- 01 TT2: I couldn't start last activity (.)
02 I mean (.) the poster activity
03→ TE: what was the reason? what do you think?
04 TT2: well uhm: I guess (.) at first
05 they didn't understand (.)
06 TE: uh-hm uh-hm
07 TT2: students didn't understand reading (.) reading passage
08 and so they asked many questions

09 TE: [uh-hm
10→ TT2: [and I had to answer these questions
11 and remind revise some vocabulary (.)
12 önceki haftalardan
from the previous weeks
13 TE: *NAME* this is not a bad thing
14 students first need to understand what to do
15 so that they can complete the task successfully
16 TT2: right
17→ TE: it is good that you answered their questions (.)
18 and (.) helped them understand
19 TT2: hmm (.) I see

In Lines 01 and 02, TT2 reveals the perceived flaw of his teaching practice by referring to his not being able to cover all the stages of the lesson plan ('I couldn't start last activity (.) I mean (.) the poster activity'). TT2's self-examination of his teaching practice and his increasing awareness about the dissonance that he perceives between what he planned and what he did creates a potential growth point for TT2's construction of language teacher cognition within his ZPD. With appropriate support and scaffolding, TT2 can better utilise the perceived negative experience. Accordingly, by orienting questions in Line 03 ('what was the reason? what do you think?'), TE makes use of this growth point and creates a joint communicative space for interthinking co-constructed on the foundations of shared knowledge of TT2's teaching practice. This indicates us that TE fundamentally has the greater responsibility within the IDZ to create the spaces to address immediate needs and concerns of the participant pre-service teachers and push them beyond their current capabilities. Starting with Line 04, TT2 exhibits a sense of intersubjectivity by talking about the reasons of unsuccessful management of the executed lesson plan as students' non-understanding of the reading passage and their asking too many questions. Here, TT2's justifications are followed by TE with the back-channel acknowledgement tokens in Lines 06 and 09. Next, TT2 continues talking about the reasons of the perceived problems in his teaching practice (Line 10, '[and I had to answer these questions'; Line 11, 'and remind revise some vocabulary (.)'). Upon TT2's explanations, TE tries to smooth TT2's cognitive/emotional dissonance in Line 13 ('*NAME* this is not a bad thing'). TE stays cognitively and emotionally attuned to TT2's concerns and puts her expert

stance in an explicit mediation in Lines 14 and 15 ('students first need to understand what to do'; 'so that they can complete the task successfully'). By displaying an expert's teacher thinking in an explicit mediation, TE mediates TT2's teacher learning activity within the IDZ through demonstrating the pedagogical benefits of answering student questions and revising previous topics even if these cause contradictions in the previously planned instructional activity. After getting a confirmation from TT2 in Line 16 ('right'), TE continues to display her expert notion of creating learning opportunities ('it is good that you answered their questions (.) and (.) helped them understand'), which is confronted with TT2's claim of understanding (Sacks, 1992) in Line 19 ('hmm (.) I see').

In Extract 7, TT2's judgements and concerns over his uncompleted lesson plan in his fourth teaching practice are compatible with his reflections on the differences between the instructional practices in micro-teachings and teaching practices on the field (see TT2, Stage I, Interview 1; Stage IV, Interview 8). TE's use of explicit mediation by putting an expert teacher thinking concerning learning opportunities may create a space to turn TT2's cognitive and emotional dissonance into a potential growth point for teacher learning. Moreover, TE's making expert thinking transparent and her alternative interpretation of TT2's instructional practices regarding student understanding, learning, and successful task completion increase the potentiality of a learning-to-teach experience and shape the construction of formative assessment cognition as a growth point for TT2. If TT2 can internalize the potentiality of student non-understanding in shaping learning opportunities and can form a connection between the unavoidability of interactive decision-making and formative assessment, he may have a heightened chance of turning these concepts into psychological tools while constructing his language teacher cognition. TT2's claim of understanding at the end of the extract may represent a potential development point in his co-constructed formative assessment teacher cognition.

In line with TT2's language teacher cognition in construction as instantiated in responsive mediation in Extract 7, TT2's reflections indicate his awareness and understanding of formative assessment, and he evaluates his extra explanations and questions as an assessment opportunity as he refers to an important principle in formative assessment framework in his reflective journal:

“My previous teaching practice was easier because I had planned the activity for formative assessment beforehand, and I didn’t have extreme problems while conducting this activity. However, in my last teaching practice, I couldn’t cover the whole lesson plan. I had to skip the last activity. ... I wasn’t expecting it, but students didn’t understand the activities, and they asked many questions. ...When it comes to formative assessment, although I wasn’t prepared for it, now I see that I tried to answer students’ questions and helped them to understand the task. ... According to the framework, at that moment, I guess that this helped me to see where the learner is going, where the learner is right now, and how to get there.” (TT2, Stage IV, Reflective Journal 13)

According to the framework for the aspects of formative assessment by William and Thompson (2008), the first dimension of formative assessment consists of three key steps in teaching and learning: ‘where the learner is going’, ‘where the learner is right now’, and ‘how to get there’. Based on this framework, using formative assessment requires being clear about the specific learning goals and focusing on the elicitation, interpretation, and use of information in order to determine the next instruction or learning process. For the initial part of the first key step (where the learner is going), the teacher needs to clarify learning goals in order to orient students to a mutual understanding of these goals and criteria for success. Next, in order to understand where the learners are in their learning, the teacher may elicit evidence of students’ learning by engineering effective classroom discussions, questions, and tasks. Lastly, in the third step, the teacher may foster student learning more by providing feedback that moves learners forward. TT2’s justification for conducting these three key steps mainly comes from the responsive mediation occurred in the post observation conference between TT2 and TE (see the sociocultural discourse analysis for TT2, Stage IV, Post-OC 4, Extract 7). Through responsive mediation, TT2 discovers that his orientation to students’ non-understanding by answering their questions and revising the previous topics was an important interactive decision-making which had the potential to foster successful task completion and student learning. By internalizing this awareness, TT2 forms a connection between his instructional practice, his awareness, and formative assessment in his reflective journal (“... I guess that this helped me to see where the learner is going, where the learner is right now, and how to get there”, TT2, Stage IV, Reflective Journal 13). This increased awareness for the implementation

of formative assessment might be a step further in TT2's construction process of language teacher cognition.

Overview of the construction process of formative assessment cognition regarding the factor of teacher education. The present section of the findings chapter scrutinizes 'teacher education' as one of the factors influencing participant pre-service language teachers' construction of formative assessment cognition. Furthermore, it analyses the construction process of the related cognition around the same influential factor - teacher education by referring to the link between participants' construction of formative assessment cognition and the process of learning-to-teach. Under the theme of 'teacher education', there has been paid special attention to the factor of 'courses in teacher education' as a code with pivotal references to the effects of 'teaching-related courses' and 'micro-teachings'.

An overview of the findings regarding 'teacher education' as a factor influencing the construction of formative assessment cognition is provided in Table 16 below. The overview of the findings is presented with the examples from TT1's dataset. As indicated in Table 16, the code of 'courses in teacher education' is encountered in the participants' reflections on the process of their teacher education. For example, TT1 believes that the contents of the courses form the initial steps of being a good language teacher: "We need these courses to learn how to become a good English teacher" (TT1, Stage I, Interview 1). Furthermore, TT1 also states the importance of teaching-related courses in building her expertise by expressing that courses like approaches, methodology, and teaching English to young learners were quite beneficial, and she loved to attend those courses (see TT1, Stage I, Interview 1). Additionally, she expresses the influence of teaching-related courses on shaping her pedagogical knowledge related to the importance of instruction-giving ("When our instructor asked about the teachers' instructions, I understood the place of instructions in an activity", TT1, Stage I, Interview 5). Based on the knowledge she attained from the teaching-related courses, TT1's classroom observations, at some point, focused on the mentor teacher's instruction giving, and she reflected on it, "In methodology courses, we always kept saying: Tell students what to do before putting them into groups, and give clear instructions! This helps to keep the discipline" (see TT1, Stage I, Reflective Journal 8). TT1 expresses her

awareness for the importance of instruction-giving in the interviews and in her reflective writing. In line with this state of awareness, she disambiguates her understanding of this pedagogical knowledge with a self-examination in a post-observation conference (see TT1, Stage III, Post-OC 3, Extract 5). In the trajectory of TT1's dataset, 'courses in teacher education' is an important factor influencing the construction of her formative assessment teacher cognition, and we can follow TT1's internalization of the scaffolded solutions for teacher instructions in her next classroom practice in which she demonstrates the instructions for a group work on the power point slide as co-decided with TE in the previous post-observation conference (TT1, Stage IV, Document Analysis 4, Classroom Observation 4, and Reflective Journal 13). In TT1's dataset, we cannot deny 'the effects of teaching-related courses' on the way she perceives teacher instructions and her classroom practices, which, at the end, helps her to notice the place of an important aspect of formative assessment (KS1) in her latest teaching practice (see Table 16 for an overview of the factor 'teacher education' in the samples from TT1's dataset).

Table 16

Overview of The Theme 'Teacher Education' as A Factor Influencing the Construction of Formative Assessment Cognition

Participant	Theme	Code	Summary of Findings	Sample Excerpts
TT1	Teacher Education	Courses in teacher education	<ul style="list-style-type: none"> - viewing the contents of the courses as the initial steps of being a good language teacher - stating the importance of teaching-related courses in building her expertise 	<p>- TT1, Stage I, Interview 1</p> <p><i>"We need these courses to learn how to become a good English teacher"</i></p> <p><i>"I think that I learnt about teaching in courses like approaches, methodology and young learners. These courses were extremely useful for me"</i></p> <p><i>"We learnt how to design a lesson and activities to support our students' learning"</i></p>
TT1	Teacher Education	Courses in teacher education	<ul style="list-style-type: none"> - expressing the influence of teaching-related courses on shaping her pedagogical knowledge related to the importance of instruction-giving 	<p>- TT1, Stage I, Interview 5</p> <p><i>"We talked about what was good and what was bad about that lesson, and it turned out to be an ineffective lesson"</i></p> <p><i>"When our instructor asked about the teachers' instructions, I understood the place of instructions in an activity"</i></p>

Participant	Theme	Code	Summary of Findings	Sample Excerpts
TT1	Teacher Education	Courses in teacher education	- remarking on the mentor teacher's instruction-giving under the influence of the input coming from the methodology courses	- TT1, Stage I, Reflective Journal 8 <i>"Cansu teacher explained the activity, but the students didn't understand it. They just kept asking what they were going to do throughout the activity, so there was chaos"</i> <i>"In methodology courses, we always kept saying: Tell students what to do before putting them into groups, and give clear instructions! This helps to keep the discipline"</i>
TT1	Teacher Education	Courses in teacher education	- making the abstract knowledge ('importance of teacher instructions' originating from a teaching-related course) concrete through responsive mediation in the IDZ	- TT1, Stage III, Post-OC 3, Extract 5 <i>"in fact (.) I try it (.) I mean I repeat the important parts before the task (.) during the task but while doing it I get err:: confused"</i>
TT1	Teacher Education	Courses in teacher education	- TT1's internalization of the scaffolded solutions for teacher instructions in her next classroom practice	- TT1, Stage IV, Classroom Observation 4
TT1	Teacher Education	Courses in teacher education	- stating specific aims about instruction-giving in her next classroom practice - elaborating on teacher instructions as an internalized academic concept in the part for the anticipated problems and the possible solutions for these problems	- TT1, Stage IV, Document Analysis 4 <i>"After I make this point of the activity clear I will ask the students to take a look at the questions on the board and go through the meanings of the questions together"</i> <i>"Lastly I will ask them to discuss these questions with their pairs after they complete the first part of the activity"</i>

Participant	Theme	Code	Summary of Findings	Sample Excerpts
				<i>"I will first clearly explain what I want the students to do, followed by an example demonstration. I will put the instructions on PPT so that Ss can follow me"</i>
TT1	Teacher Education	Courses in teacher education	<ul style="list-style-type: none"> - picking up the instruction-giving sequences as a point to discuss in relation to formative assessment in her reflective writing - connecting the practice of her successful instruction-giving to implementing one of the key strategies of formative assessment (KS1) 	<p>- TT1, Stage IV, Reflective Journal 13</p> <p><i>"...I wanted to give clear instructions so that students can understand what they are supposed to do"</i></p> <p><i>"In case of that they wouldn't understand what to do, I demonstrated the first example to clear any confusion"</i></p> <p><i>"With these, I believe that I could manage to clarify learning intentions and criteria for success [KS1]"</i></p> <p><i>"After I gave the instructions and when they started working on their maps, I could see that they mostly understood the aim of the task"</i></p>

As a factor influencing the construction of formative assessment cognition, 'courses in teacher education' is also a means for the development of formative assessment teacher cognition. The major shifts occurring around this cognition construction have been categorized in six stages (dissonance, exploration of teaching-related beliefs, self-examination, re-examination of alternatives, approval, and integration) as demonstrated in Table 6. An overview of this construction process in TT1, TT8, and TT2's dataset is illustrated in Table 17 below.

In this section, in order to exemplify the participants' cognition construction process in micro units of major shifts, TT1's major shifts in the construction of formative assessment cognition will be explained around the factor of 'courses in teacher education' with a reference to the effects of teaching-related courses. Analysis of TT1's dataset including reflective journals, interviews, classroom observations (field notes), documents (lesson plans), pre- and post-observation conferences proceeded from specific themes into more general categories with consideration of TT1's changes in formative assessment cognition over time around the theme of 'teacher education'. By iteratively coding and analysing TT1's dataset over time, the researcher could track the trajectory of her cognitive formation of the concepts related to formative assessment, which also helped to discover various individual, social, and contextual factors effective in TT1's learning-to-teach process.

At different stages of teacher cognition construction process, TT1 raises her awareness through the dissonances between what she feels, believes and what she experiences and what she does. For example, she questions the mentor teacher's instruction-giving practices under the influence of the input coming from the methodology courses ("Cansu teacher explained the activity, but the students didn't understand it. They just kept asking what they were going to do throughout the activity, so there was chaos", TT1, Stage I, Reflective Journal 8). Under the theme of 'dissonance', TT1 also experiences the dilemma between her beliefs about the importance of teacher instructions and her perceived negative experience in the latest instruction-giving practice and tries to find out a better alternative instructional practice to give clear instructions (TT1, Stage III, Post-OC 3, Extract 5). TT1's awareness is strengthened with her discovery of contradictions as she notices a perceived flaw in her instruction-giving skills, which creates a contradiction between

what she thinks, believes, knows, feels, and what she does (TT1, Stage III, Post-OC 3, Extract 5). In line with these, TT1's awareness again manifests itself with her exploration of teaching-related beliefs as she views the contents of the courses as the initial steps of being a good language teacher and states the importance of teaching-related courses in building her expertise and shaping her pedagogical knowledge related to the importance of instruction-giving (TT1, Stage I, Interview 1, Interview 5). As the participant pre-service teachers were involved in reflective practices based on formative assessment and also exposed to theoretical and practical input in their last year of teacher education, it was observed that they started to realise aspects of teaching and learning beyond their pre-existing beliefs by revealing possibilities that they start to expand their knowledge and understandings. The realisation and expansion of their beliefs can be associated with the input from the courses, reflective practices conducted in the present case study, and formative classroom practices. They spent effort while putting new ideas into practice. They might add these new insights into their pre-existing belief system, but such realisation might not necessarily lead to certain changes. However, realisation of new insights is an essential stage, if any changes are to take place at a later stage as "changes in human beliefs require time" (Mattheoudakis, 2007, p. 1283).

By increasing her awareness, TT1 starts to self-examine her own beliefs, knowledge, and practices. For example, she examines her own instructional practice by revealing her awareness of the problem in her instruction-giving for the task and identifies the instructional practices where she focuses on making instructions clear by reflecting on her unsuccessful attempts with the repetition of the instructions (TT1, Stage III, Post-OC 3, Extract 5). TT1 also undertakes re-examination of alternatives by critiquing about alternative instructional practices for teacher instructions through TE's mediation. She works on alternative instructional practices of teacher instructions for the next teaching practice and builds on the notion that teacher instructions are important for a successful task completion (TT1, Stage III, Post-OC 3, Extract 5).

Through increased awareness and understanding, TT1 fosters her cognition through engagement in making the abstract knowledge ('importance of teacher instructions' originating from a teaching-related course) concrete through

responsive mediation, and she manages to utilise the perceived negative experience of instruction-giving in the IDZ (TT1, Stage III, Post-OC 3, Extract 5). Alongside her engagement with the pedagogical knowledge of fostering student understanding and learning through clear instructions, TT1 starts building competence and self-confidence. Accordingly, TT1 internalizes the scaffolded solutions for teacher instructions in her next classroom practice in which she demonstrates the instructions for a group work on the power point slide as co-decided with TE in the previous post-observation conference (TT1, Stage IV, Classroom Observation 4). Furthermore, by displaying approval, TT1 states specific aims about instruction-giving in her next classroom practice, and she elaborates on teacher instructions as an internalized academic concept in the part for the anticipated problems and the possible solutions for these problems (TT1, Stage IV, Document Analysis 4). Lastly, as a combination of all major shifts around the factor of 'teacher education', TT1 integrates the pedagogical knowledge of giving clear instructions with formative assessment and builds on the construction of her formative assessment teacher cognition. In this phase of integration, TT1 picks up the instruction-giving sequences as a point to discuss in relation to formative assessment in her reflective writing, and she connects the practice of her successful instruction-giving to implementing one of the key strategies of formative assessment (KS1) (TT1, Stage IV, Reflective Journal 13). For an overview of major shifts in the datasets of TT1, TT8, and TT2 in the construction process of formative assessment cognition regarding 'teacher education', see Table 17 below.

Table 17

*Overview of the Construction Process of Formative Assessment Cognition
Regarding 'Teacher Education'*

Participant: TT1	
Theme: Teacher Education	
Code: Courses in teacher education / teaching-related courses	
	<ul style="list-style-type: none"> - dissonance - Stage I, Reflective Journal 8 • questioning the mentor teacher's instruction-giving practices under the influence of the input coming from the methodology courses
TT1-Major Shift 1	<ul style="list-style-type: none"> - dissonance - Stage III, Post-OC 3, Extract 5 • experiencing the dilemma between her beliefs about the importance of teacher instructions and her perceived negative experience in the latest instruction-giving practice • notifying a perceived flaw in her instruction-giving skills creates a contradiction between what she thinks, believes, knows, feels, and what she does
TT1-Major Shift 2	<ul style="list-style-type: none"> - exploration of teaching-related beliefs – Stage I, Interview 1 • viewing the contents of the courses as the initial steps of being a good language teacher • stating the importance of teaching-related courses in building her expertise - exploration of teaching-related beliefs – Stage I, Interview 5 • expressing the influence of teaching-related courses on shaping her pedagogical knowledge related to the importance of instruction-giving
TT1-Major Shift 3	<ul style="list-style-type: none"> - self-examination - Stage III, Post-OC 3, Extract 5 • examining her own instructional practice by revealing her awareness of the problem in her instruction-giving for the task • identifying the instructional practices where she focuses on making instructions clear • reflecting on her unsuccessful attempts with the repetition of the instructions
TT1-Major Shift 4	<ul style="list-style-type: none"> - re-examination of alternatives - Stage III, Post-OC 3, Extract 5 • critiquing about alternative instructional practices for teacher instructions through TE's mediation • working on alternative instructional practices of teacher instructions for the next teaching practice together with TE • building on the notion that teacher instructions are important for a successful task completion

-
- approval - Stage III, Post-OC 3, Extract 5
- making the abstract knowledge ('importance of teacher instructions' originating from a teaching-related course) concrete through responsive mediation
 - utilising the perceived negative experience of instruction-giving in the IDZ
- approval - Stage IV, Document Analysis 4
- stating specific aims about instruction-giving in her next classroom practice
 - elaborating on teacher instructions as an internalized academic concept in the part for the anticipated problems and the possible solutions for these problems
- TT1-Major Shift 5
- approval - Stage IV, Reflective Journal 13
- developing an agreement on the usefulness of formative assessment
 - recognizing formative assessment as useful in making sense of a learning/teaching issue

-
- integration - Stage IV, Classroom Observation 4
- TT1's internalization of the scaffolded solutions for teacher instructions in her next classroom practice in which she demonstrates the instructions for a group work on the power point slide as co-decided with TE in the previous post-observation conference
- TT1-Major Shift 6
- integration - Stage IV, Reflective Journal 13
- picking up the instruction-giving sequences as a point to discuss in relation to formative assessment in her reflective writing
 - connecting the practice of her successful instruction-giving to implementing one of the key strategies of formative assessment (KS1)

Participant: TT8

Theme: Teacher Education

Code: Courses in teacher education / teaching-related courses

- dissonance - Stage II, Pre-OC 1, Extract 6
- revealing her discovery of contradictions between what she believes, knows and what she observes in terms of mentor teacher's practices
 - expressing her cognitive/emotional dissonance which is caused by what she observes during regular classes at the host school and also what she aims to accomplish as a communicative lesson in ideal
- TT8-Major Shift 1
- dissonance - Stage II, Reflective Journal 11
- experiencing and expressing an inconsistency between what TT8 planned and did in terms of formative assessment and communicative language teaching
-

TT8-Major Shift 2	<ul style="list-style-type: none"> - exploration of teaching-related beliefs – Stage I, Interview 1 • viewing the initial courses important for the betterment of her language proficiency before learning how to teach English • prioritizing teaching-related courses as the most effective components of her teacher education • stating the importance of the contents of the teaching-related courses (e.g. methodology) in helping her to learn the nuances of language teaching • highlighting the importance of interaction and group work, which were emphasized critically while they were discussing communicative approaches in one of the teaching-related courses
TT8-Major Shift 3	<ul style="list-style-type: none"> - approval - Stage II, Pre-OC 1, Extract 6 • relating her interactive course planning to the implementation of KS4 (activating students as instructional resources for one another) and KS5 (activating students as the owners of their own learning) • developing her understanding of formative classroom practice by referring to the key strategies that she intends to implement in her next teaching practice - approval - Stage II, Reflective Journal 11 • remaining her heightened awareness and understanding of formative classroom practice, but also putting emphasis on the difficulty of implementing formative assessment
<p>Participant: TT2</p> <p>Theme: Teacher Education</p> <p>Code: Courses in teacher education / micro-teachings</p>	
TT2-Major Shift 1	<ul style="list-style-type: none"> - dissonance - Stage IV, Interview 8 • expressing his awareness for the differences between the teaching practices in the context of a teacher education course (micro-teachings) and the authentic classroom atmosphere during the practicum - dissonance - Stage IV, Post-OC 4, Extract 7 • perceives an inconsistency between what he planned and what he did
TT2-Major Shift 2	<ul style="list-style-type: none"> - exploration of teaching-related beliefs – Stage I, Interview 5 • classifying micro-teachings as an opportunity to turn theory into practice • concentrating on the differences between the simulation of micro-teachings and real teaching practices during practicum
TT2-Major Shift 3	<ul style="list-style-type: none"> - self-examination - Stage IV, Interview 8 • explaining the reason of his not being able to cover the whole lesson plan and leaving the last speaking activity out

	<ul style="list-style-type: none"> - self-examination - Stage IV, Post-OC 4, Extract 7 • revealing his concerns for the perceived flaws in his teaching practice, and he speculates on the possible reasons of this perceived flaw
TT2-Major Shift 4	<ul style="list-style-type: none"> - approval - Stage IV, Reflective Journal 13 • agreement on the usefulness of classroom-based assessment
TT2-Major Shift 5	<ul style="list-style-type: none"> - integration - Stage IV, Reflective Journal 13 • evaluating his extra explanations and questions as an assessment opportunity as he refers to an important principle in formative assessment framework • explaining his formative assessment practices: “although I wasn’t prepared for it, now I see that I tried to answer students’ questions and helped them to understand the task”

Table 17 above provided specific examples from the datasets of TT1, TT8, and TT2 for the construction process of language teacher cognition around the factor of ‘courses in teacher education’. By illustrating the overall process for all participants, Table 18 and Table 19 below exemplify the trajectory of language teacher cognition formation around ‘teacher education’ as a main influential factor in the present study.

Table 18

The Construction Process of Formative Assessment Teacher Cognition Around the Factor of 'Teaching-Related Courses'

	dissonance	exploration of teaching-related beliefs	self-examination	re-examination of alternatives	approval	integration
TT1	√	√	√	√	√	√
TT2	√	√	√	-	√	-
TT3	√	√	-	√	-	-
TT4	√	√	√	-	√	-
TT5	-	√	-	√	√	-
TT6	-	√	-	√	-	-
TT7	√	√	√	-	√	-
TT8	√	√	-	-	√	-
TOTAL	6	8	4	4	6	1

Table 18 indicates that 'teaching-related courses in teacher education' was an effective factor in the construction process of language teacher cognition for all participants to certain degrees. For example, around the factor, all of the participants had a chance to explore their teacher beliefs ($f = 8$) by making connections between these beliefs, their observations, practices, and experiences. In accordance with these beliefs about teaching and learning, they noticed some gaps between vision and the reality (dissonance, $f = 6$), which enabled them to form the foundations of their language teacher cognition. Some participants managed to develop a critical eye on their own instructional practices and formative assessment (self-examination, $f = 4$), and they focused on the idea of successful teaching and student learning with the alternative formative classroom practices (re-examination of alternatives, $f = 4$). Furthermore, they engaged with the idea of formative assessment and developed an agreement on the usefulness of classroom-based assessment (approval, $f = 6$). This was mainly shaped by the knowledge and experiences they gained through some certain courses in teacher education. Finally,

one of the participants (TT1) revealed a changed and developed perspective of formative assessment concept, and she displayed a desire to use it for the benefit of the students and for a better teaching.

Under the scope of the ‘courses in teacher education’, Table 19 below represents ‘micro-teachings’ as another important factor influential in the formation of language teacher cognition. The table shows the frequency of the major steps experienced by the participants while shaping their formative classroom practices. The trajectory of this formation for all participants can be followed in Table 19.

Table 19

The Construction Process of Formative Assessment Teacher Cognition Around the Factor of ‘Micro-teachings’

	dissonance	exploration of teaching-related beliefs	self-examination	re-examination of alternatives	approval	integration
TT1	√	√	√	-	√	-
TT2	√	√	√	-	√	√
TT3	√	√	-	√	-	-
TT4	-	-	-	-	-	-
TT5	-	-	-	-	-	-
TT6	-	√	-	√	-	-
TT7	√	√	√	-	√	-
TT8	√	√	√	√	√	-
TOTAL	5	6	4	3	4	1

Contextual factors. Context is a teaching situation which affects what teachers do in classrooms in different ways as teachers “act in the light of their own beliefs, attitudes, and perceptions of the relevant teaching situation” (Tudor, 2001, p. 17). Borg (2006, 2015) reported that there are social, psychological, and environmental factors that shape teachers’ practices. Parents, principal, curriculum, school policies, colleagues, tests, and availability of resources are among these

factors. He also claimed that such factors may restrain language teachers from doing what they believe in terms of classroom practices. Based on these ideas, it would not be wrong to claim that contextual factors may have an influence on teachers' instructional decisions and departures from lesson plan. In line with these ideas, Birello (2012) highlighted the importance of context while investigating the relationship between teacher cognition and classroom practice. Otherwise, we may end up with a partial understanding because the relationship between cognition and practices is not linear but multifaceted, and context mediates this relationship. These contexts can be very broad or at a very specific classroom level. Therefore, in order to understand the complexity of teachers' beliefs about teaching and learning, it is important to understand the complexities of both macro and micro contexts and how they interact (ibid.).

The studies mentioned in the literature review part mainly exhibit the examples of contextual factors and their significant impact on teacher cognition and classroom practices. However, by looking at the scope of the studies, it can be claimed that research on the impact of contextual factors generally focuses on in-service teacher cognition and practices. Therefore, there is a need for further research to understand what contextual factors encircle pre-service teacher education and the role of these contextual factors in formation of pre-service language teacher cognition and pre-service teaching practice regarding formative assessment. By taking this limitation in the field into consideration, the present section of the findings chapter intends to illustrate contextual factors as a significant factor influencing the construction of formative assessment teacher cognition within the context of pre-service language teacher education with a sociocultural perspective. The theme of 'contextual factors' is examined with a specific emphasis on the immediate professional community which consists of the 'mentor teacher's recommendations' and 'variety in learners' reported level of participation'. These factors are also scrutinised in their relations to the broader macro contexts like curriculum and testing policies. The practicum experience is one of the most important stages of learning-to-teach process, and it plays an important role in shaping student teachers' conceptions and cognitions about their prospective career (Gülden, 2013). This new experience of the practicum brings new contextual factors with itself, which are scrutinized in the present study in order to explore their

impact on the construction of formative assessment teacher cognition. With a sociocultural perspective on ‘contextual factors’, Table 20 below presents the frequencies for the factors of ‘mentor teacher’s recommendations’ and ‘variety in learners’ reported level of participation’.

Table 20

‘Contextual Factors’ As An Influential Factor In The Construction of Formative Assessment Teacher Cognition

Participants	Contextual Factors					
	mentor teacher’s recommendations		variety in learners’ reported level of participation		TOTAL	
	n	%	n	%	n	%
TT1	-	-	3	14.2	3	8.1
TT2	-	-	2	9.5	2	5.4
TT3	4	25	1	4.7	5	13.5
TT4	3	18.7	4	19.04	7	18.9
TT5	3	18.7	6	28.5	9	24.3
TT6	-	-	-	-	-	-
TT7	6	37.7	-	-	6	16.2
TT8	-	-	5	23.8	5	13.5
TOTAL	16	100	21	100	37	100

*‘n’ represents the number of each code that occurred in the dataset of the relevant participant trainee teacher

The quantification of the results from the content analysis revealed that the theme of ‘contextual factors’ ($n = 37$) is another influential factor in the participants’ construction process of formative assessment teacher cognition. This process of construction around the framework of contextual factors was mainly influenced by the ‘variety in learners’ reported level of participation’ ($n = 21$), and then by the factor of ‘mentor teacher’s recommendations’ ($n = 16$). Participants’ *perezhivanie* (lived experiences) and *obuchenie* (teaching/learning) were distinctive in the formation of these results. The influence of these contextual factors was not so explicit in the formation of language teacher cognition in some datasets (e.g. TT1, TT2, TT6) while the others revealed significant results. For instance, the code of ‘mentor teacher’s recommendations’ was identified in the datasets from TT7 ($n = 6, 37.7\%$), TT3 ($n = 4, 25\%$), TT5, and TT4 ($n = 3, 18.7\%$). With the code ‘variety in learners’ reported

level of participation', the analysis of contextual factors was furthered with the frequencies from TT5 with the highest frequency ($n = 6$, 28.5%) followed by TT8 ($n = 5$, 23.8%), and TT4 ($n = 4$, 19.04%). When we look at the overall distribution of the frequencies among the participants regarding the theme of 'contextual factors' ($n = 37$), some example distributions are as follows: TT5 ($n = 9$, 24.3%), TT4 ($n = 7$, 18.9%), TT7 ($n = 6$, 16.2%), and TT8 ($n = 5$, 13.5%). The theme of 'contextual factors' is further elaborated on with the examples from the datasets of TT7, TT5, and TT8. The following parts will deepen into the data qualitatively by means of relevant excerpts and descriptions from datasets including interviews, classroom observations (field notes), documents (lesson plans), reflective journals, and pre- and post-observation conferences.

Mentor teacher's recommendations. Teacher education programmes are the platforms that prepare pre-service teachers for their prospective professions. According to Korthagen, Loughran, and Russell (2006), most of the mainstream national education systems serve teacher education with the components of academic subjects and practical-pedagogical training (practicum) to prepare pre-service teachers for their professional life. In this process of teacher education, mentoring -as an essential component of the practicum- is provided by the in-service teachers at the host schools and has the potential to positively contribute to trainee teachers' professional development (Helms-Lorenz, Slof, & van de Grift, 2013; Ingersoll & Strong, 2011). However, as some prominent studies indicate, mentoring may result in contrasting outcomes, and how the effects of mentoring reflect on the professional development of mentees is a complex issue (Brondyk & Searby, 2013; Lejonberg et al., 2018; Hobson & Malderez, 2013). In the present study, by querying mentor teacher's recommendations under the theme of contextual factors, it is aimed to touch upon the mentoring issue with specific examples from the examined dataset. Though it is not the main concern to go into an in-depth analysis of mentor teacher and trainee teacher relationship, it is aimed to examine the place of mentor teacher recommendations in the construction of formative assessment teacher cognition. Although mentor teachers' recommendations are not directly linked to formative assessment, reflective practices conducted under the scope of the present case study led the participant trainee teachers to form a connection between these recommendations and formative classroom practices. It should also be noted that

not every mentor teacher recommendation is welcomed favourably by the participant pre-service teachers. However, the ones which reinforce the construction of formative assessment teacher cognition are examined in the upcoming analysis.

By looking at the trajectory of the datasets in the present study, it might be claimed that participant pre-service language teachers generally hold a critical stance for the mentor teachers' recommendations as they tend to believe that mentor teachers adopt a classical teaching style that causes unwillingness among learners towards learning a foreign language. However, there are also particular instances where participant pre-service teachers appreciate the involvement of the mentor teachers in their learning-to-teach process because of their professional experience.

"Today, Cansu teacher only did the exercises in the book one by one. As far as I observed, the students got really bored. They just did the exercises one by one and wrote down the things on the board." (TT4, Stage I, Reflective Journal 5)

"As it is not my own classroom, it is sometimes difficult to follow what students know and don't know. Or what is missing from the previous units. ... In this sense, mentor teacher's recommendations might be useful at times. In the end, she has more experience than me." (TT5, Stage III, Interview 7)

"While using the reading passage from the book, I wanted to create a different activity on it. I didn't want to use only the exercises in the book because they are boring for students. I observed that students generally tend to translate everything into Turkish. Actually, this is what Cansu Teacher wants." (TT4, Stage III, Reflective Journal 12)

"Our mentor teacher always teaches in a classic way. Like grammar-translation. I couldn't see anything interesting and creative in my classroom observations. I don't think that students will be willing to learn English in this way." (TT6, Stage I, Interview 3)

"Cansu teacher always warns students like 'This is probably going to be asked in the exam, so listen to me carefully!' or 'I am expecting you to score high in the exam!' ... These are all exam-oriented expressions. To be honest, I believe that this makes students nervous. It is not motivating the students; they just study because they are scared [of the exams]. Instead of teaching in a way that makes students scared of exams, I mean, if we turn learning into something interesting and fun, the students will study in a more motivated way." (TT2, Stage I, Reflective Journal 9)

“This week, we were supposed to observe a group work. Cansu teacher does not normally have group works because of student noises. ... As we asked for one, she agreed on, and in that way, we had a chance to observe her group-work activity.” (TT1, Stage I, Reflective Journal 8)

“Some students didn’t want to study in the same group. But, I tried to convince them to work together. Our mentor teacher recommended that. ... She said that teachers shouldn’t every time do what students want as they may take advantage of it.” (TT3, Stage I, Interview 3).

Above-presented excerpts illustrate the participant trainee teachers’ critical perspectives of two mentor teachers’ instructional practices and their recommendations. There are instances of lesson preparations and instructional practices in which they either preferred or were required to follow mentor teachers’ recommendations. For example, TT7 is one of the participants who criticizes the mentor teacher’s practices by stating her concerns for exam- and curriculum-oriented instructional practices.

“As far as I observed, Elif teacher (*pseudonym for the second mentor teacher*) is a traditional teacher. When we asked about the teaching methods she uses, she only talked about the exams and the curriculum. She designs her lessons just for upcoming exams or to finish a unit in the coursebook.” (TT7, Stage I, Interview 3)

TT7 also reveals her discontent with the pressure for the obligation of implementing some certain instructional practices which are requested by the mentor teacher. However, it is also noticed that TT7 is aware of the mandatory implementations caused by the limitations of broader contextual factors like testing and curriculum policies. In the construction of her language teacher cognition and with the dynamism of learning-to-teach process, TT7’s awareness increases as she explores her teaching-related beliefs and discovers the contradictions between the language teaching and learning environment in her vision and the one in reality mandated by broader contextual factors.

“I wish I had more freedom to choose the topic or materials for my teaching practices, but unfortunately Elif teacher decides on the main parts. I know that they are trying to finish the coursebook, and getting ready for the exams. But I believe this creates boring lessons.” (TT7, Stage I, Reflective Journal 10)

TT7 continues revealing her concerns about applying mentor teacher's recommendations in her teaching practices. She clearly states her disagreement with the idea that the implementation of group-work activities creates classroom discipline problems. Through these reflections, there is observed a cognitive/emotional dissonance concerning the confusion about the implementation of group-work activities and a heightened awareness with TT7's exploration of teaching-related beliefs.

"For my next teaching practices, I would like to have some group-work activities, but our mentor teacher [Elif teacher] warned us against group-work. She says that you lose classroom discipline when students work in groups, and it is better if we don't have group-work activities. ... I don't know. I don't think like her." (TT7, Stage II, Interview 6)

With a similar concern about the mentor teacher's recommendations, TT7 discloses her thoughts about a last-minute change requested by the mentor teacher in the execution of TT7's teaching practice. In the below-examined dialogue occurred between TT7 and TE in a post observation conference, TT7 manages to turn a cognitive/emotional dissonance into a growth point through responsive mediation guided by TE. While constructing the foundations of her formative assessment teacher cognition, TT7 increases her understanding through self-examination and by focusing on the idea of assessing student knowledge.

Extract 8. (TT7, Stage III, Post-OC 3)

- 01→ TT7: Elif hoca (.) derse başlamadan önce
02→ ihm: önceki hafta anlattıklarını tekrar edersem
03→ daha iyi olacağını söyledi
*Elif teacher told me that it is better to revise the things
that she taught previous week
before starting the lesson*
- 04 sorun çıkmasını istemediğim için
05 bazı kelimeleri ve quantities konusunu tekrar ettim
06 hani dersin başında
*as I do not want to have problems
I revised some words and the subject of quantities
at the beginning of the lesson*
- 07→ kendi planımda aksaklıklara neden oldu ama bu maalesef
but unfortunately this caused some flaws in my own plan

- 08→ TE: peki bunları tekrar etmesen nasıl olurdu ders sence?
 09 mesela doğum günü partisi aktivitesinde kullandın sanırım bunları?
well how would your lesson be like if you hadn't revised these?
for example I guess you used these in birthday party activity?
- 10 TT7: evet aslında partiyi organize ederken bu kelimeleri kullandılar
 11 some/any gibi kalıpları da ihm: kullanmaları gerekiyordu
yes in fact they used these words while organizing the party
they were also supposed to use the structures like some/any
- 12→ mesela bunların üzerinden geçerken
 13→ hani neyi bilip neyi bilmediklerini gördük biraz da
while revising these
I partly noticed what they know and what they do not know
- 14 TE: güzel (.)
 15 a few ve a little arasındaki farkı açıklamıştın sanırım değil mi?
good (.)
I guess you explained the difference between 'a few' and 'a little', right?
- 16 TT7: evet karıştırıyorlar genelde çünkü
yes they ((students)) get generally confused about them
- 17→ TE: eksiklerini görüp tamamlamış oldun (.)
you saw their short-comings and supplemented it (.)
- 18 TT7: uh-hm
- 19 TE: zamanda sorun yaşasan da
 20→ \$daha iyi oldu böyle sanki\$
 21→ \$ne dersin?\$
although you had problems with time
\$I guess this has been a way better\$
\$what do you say?\$
- 22→ TT7: \$sanki\$
\$seems like so\$

Extract 8 starts with TT7's talking about the mentor teacher's recommendations about revising the topics that were taught previous week. TT7's cognitive/emotional dissonance related to mentor teacher recommendations starts here and continues in Lines 04, 05, and 06 ('as I do not want to have problems I revised some words and the subject of quantities at the beginning of the lesson'). With Line 07, TT7 makes her dissonance obvious by referring to the perceived negative influence of mentor teacher recommendation on the execution of her lesson plan ('but unfortunately this caused some flaws in my own plan'). In these lines, within the space of responsive mediation, TT7 reveals her dissatisfaction with

the implementation of revision requested and suggested by the mentor teacher. However, in Line 08, by extending the IDZ with a question, TE orients TT7 to an alternative version of teaching practice in which she did not comply with the mentor teacher's recommendation and did not conduct the revision activity (*'well how would your lesson be like if you hadn't revised these?'*). Vygotsky (1987) exemplified these leading questions among the strategies that more expert-others can mediate learner activity in ZPD. However, without waiting for TT7's answer, TE uses a cued elicitation in soliciting for TT7's expert teacher thinking in Line 09 (*'for example I guess you used these in birthday party activity?'*). TE tries to get TT7's attention to any possible advantage of adding a revision activity into her previously designed lesson plan. In these lines, the expert-novice nature of their exchange is observable in that TE attempts to focus TT7's thinking away from simply acknowledging the idea that mentor teacher's last-minute suggestion for a revision activity caused a total flaw in TT7's teaching practice. In this way, TE guides the joint construction of knowledge, and she seeks, by questioning, to draw TT7 into a shared understanding of the benefits of revision activity.

In Line 10, TT7 orients to TE's mediation and starts to self-examine her own instructional practices (Line 10, *'yes in fact they used these words while organizing the party'*; Line 11, *'they were also supposed to use the structures like some/any'*). Thereafter, in Lines 12 and 13, TT7 continues her self-examination, and she notifies her awareness in recognizing the level of student knowledge with this revision activity (*'while revising these I partly noticed what they know and what they do not know'*). By revealing her expert teacher thinking in a co-constructed IDZ, TT7 starts to develop a different perspective for the last-minute revision recommended by the mentor teacher. TT7's evaluation of the student knowledge with the help of an activity recommended by the mentor teacher might be a sign for her construction of formative assessment teacher cognition. Accordingly, TE reinforces TT7's self-examination regarding the assessment of student knowledge with an appraisal in Line 14 and continues to scaffold TT7's perceived negative experience with the mentor teacher's recommendation by mediating TT7's expert teacher thinking with cued elicitations (Line 15, *'I guess you explained the difference between 'a few' and 'a little', right?'*). In Line 16, TT7 provides her justification behind explaining the difference between 'a few' and 'a little' while revising the previous week's lesson

(*'yes they ((students)) get generally confused about them'*). Here, we again witness TT7's assessing student learning and knowledge and acting on it to compensate for the deficiency in students' knowledge regarding the subject of 'quantities'. With these lines, TT7's cognitive/emotional dissonance 'comes into being' (Johnson & Golombek, 2016) as a growth point through which she experiences a heightened awareness for assessing student learning and knowledge. These growth points are spaces to be mediated to create conditions for teacher learning and development.

Accordingly, thereafter, TE tries to form intersubjectivity by referring to TT7's assessment of student knowledge and learning (Line 17, *'you saw their shortcomings and supplemented it (.)'*). With this, TE increases the potentiality of a learning-to-teach experience and shapes the construction of formative assessment cognition as a growth point for TT7. TT7 articulates her confirmation with a back-channel acknowledgement token in Line 18. Although the expert-novice nature of their exchange is observable in Line 19 with TE's evaluative comment on TT7's time management (*'although you had problems with time'*), TE tries to smooth TT7's cognitive/emotional dissonance with a positive evaluation of TT7's teaching practice after implementing mentor teacher's recommendation (Line 20, *'I guess this has been a way better'*), and she downplays her own expertise by soliciting for TT7's confirmation in Line 21 (*'what do you say?'*). TT7 stays attuned to TE, and the excerpt ends with TT7's mitigated confirmation in Line 22 (*'seems like so'*).

It might be inferred that TT7's *perezhivanie* (lived experiences, Vygotsky, 1987) shaped her perceptions related to mentor teacher recommendations. However, through responsive mediation as followed in Extract 8, she could manage to turn her cognitive/emotional dissonance related to mentor teacher's recommendations into potential growth points for the construction of formative assessment teacher cognition. The IDZ in Extract 8 signals for a potential development in TT7's formative assessment cognition if she can internalize these external forms of social interaction as a psychological tool. Moreover, Extract 8 reveals the significance of the influence of the mentor teacher's recommendations which emerged from the data regarding the contextual factors. In essence, it illustrates how TT7's cognition is shaped by contextual factors emerging within her immediate professional community. Although TT7 has a perceived negative experience with the mentor teacher's recommendations, a post observation

conference created a space for TT7 to perceive the mentor teacher's recommendation from a different perspective. Extract 8 illustrates that responsive mediation plays a vital role in identifying teaching and learning opportunities in language teacher education, and with appropriate support and scaffolding, pre-service language teachers can better utilise the perceived negative experience.

We can follow TT7's appropriation and internalization of the scaffolded discussion on the mentor teacher's recommendation as its influence is reflected on TT7's shaping her formative assessment cognition in her next reflective journal. TT7 designed her lesson around the theme of 'celebrations' with a specific focus on the issue of culture. The aims of her lesson design included making arrangements and sequencing the actions in the context of celebrations (TT7, Stage III, Document Analysis 3, Classroom Observation 3). Upon her teaching practice and post-observation conference, TT7 completed her reflective journal based on the key strategies related to the aspects of formative assessment (William & Thompson, 2008; see Figure 3). At the beginning of her reflective writing, TT7 briefly summarizes her lesson and the instructional practices she conducted. TT7 again refers to the last-minute change she implemented in her teaching because of the mentor teacher's recommendation and starts explaining the relation of her instructional practices to the aspects of formative assessment in the framework.

"At first I didn't want to go out of my plan because the time is limited. But, our mentor teacher asked me to go over a few things before starting my own lesson. ... Now I can see that it was not as bad as I thought because it helped students to do my tasks better. ... During that short activity, I tried to understand what they know and don't know, and I gave feedback [KS2 & KS3]." (TT7, Stage III, Reflective Journal 12)

TT7's reflections after conducting her third observed teaching practice carry the signs of the responsive mediation and the IDZ co-constructed in the third post-observation conference. Although TT7 discloses her initial feelings for the mentor teacher's recommendation, she continues to preserve the heightened sense of awareness regarding the assessment of student knowledge and learning. Under the guidance of the framework for the aspects of formative assessment, TT7 connects her instructional practices with the elicitation of student knowledge and providing feedback: "During that short activity, I tried to understand what they know and don't

know, and I gave feedback” (TT7, Stage III, Reflective Journal 12). When we analyse the framework for the reflective journals in this phase of the study (see Figure 3), TT7’s evaluation of her own instructional practices within the boundaries of formative assessment is related to the segments of ‘where the learner is right now’ and ‘how to get there’ in the framework. Furthermore, her critical evaluation of student knowledge and teacher feedback might be related to KS2 and KS3 (Engineering effective classroom discussions and other learning tasks that elicit evidence of student understanding & Providing feedback that moves learners forward).

In line with these, TT7’s engagement with the concept of formative assessment is also tracked in the other components of her dataset. For example, when she was asked about the formative classroom practices she conducted in her teaching practice, she again referred to the revision activity: “It was kind of an assessment of things that they already should have known” (TT7, Stage III, Interview 7). According to Rea-Dickins (2001), this type of classroom-based assessment is a part of instruction, and it contributes to learning rather than measuring it. This statement indicates TT7’s engagement with the concept of formative assessment since she relates her instructional practices with in-class assessment of student knowledge as a sign for her developing and changing language teacher cognition. The trajectory of TT7’s dataset indicates that mentor teacher recommendations is one of the factors influencing the construction and development of formative assessment teacher cognition. This factor originates from TT7’s immediate professional community under the theme of contextual factors. TT7’s *perezhivanie* (lived experiences) and *obuchenie* (teaching/learning) caused TT7 to behold a negative attitude towards the implementations and recommendations made by the mentor teacher (see TT7, Stage I, Interview 3; Stage I, Reflective Journal 10; Stage II, Interview 6). However, with the help of responsive mediation and reflective practices, TT7 gained a more critical perspective towards mentor teacher recommendations. These analyses may contain implications for more active involvement of the mentor teachers in student teachers’ learning-to-teach process in Turkish EFL context.

Variety in learners’ reported level of participation. Contextual factors create different teaching situations which influence what teachers do in classrooms

in different ways because teachers “act in the light of their own beliefs, attitudes, and perceptions of the relevant teaching situation” (Tudor, 2001, p. 17). Borg (2015) exemplified contextual factors as social, psychological, and environmental factors that shape teachers’ practices. Likewise, Birello (2012) emphasized on the significance of contextual factors while researching the relationship between teacher cognition and classroom practice. As these contexts can be very broad or at a very specific classroom level, it is important to understand both macro and micro contexts in order to conceptualize the complexity of language teacher cognition (ibid., 2012). As a classroom specific contextual factor, ‘variety in learners’ reported level of participation’ belongs to the paradigm of micro contexts. By taking this classroom-specific example for contextual factors into consideration, the current section of the findings chapter aims to examine ‘variety in learners’ reported level of participation’ as a significant variable influencing the construction of formative assessment teacher cognition within the context of pre-service language teacher education. There might be various reasons behind variety in learners’ reported level of participation; however, explaining these reasons is beyond the scope of the present study. Therefore, this classroom-specific element will only be scrutinized as a factor which has an impact on the construction of language teacher cognition. The whole dataset reveals that participant student teachers referred to the learners’ classroom participation when they specified student behaviours like ‘being passive throughout the lesson’, ‘unwillingness to participate or no sign of participation’, ‘slower rate of learning performance’, ‘not raising hands’, ‘difficulty in understanding English medium teacher talk’, etc. In fact, it could also be claimed that they actually assess the level of student understanding, knowledge, and learning and care about ‘where the learner is going’ (William & Thompson, 2008) by noticing the participation level of the students in the lesson, which could be counted as a significant formative assessment skill. Whether they act on it or not is a more advanced formative assessment skill which demonstrates fluctuation across the case.

TT5 is one of the participants noticing the variety in learners’ classroom participation, and his thoughts, beliefs, knowledge, and experiences related to this factor shape the construction of his formative assessment teacher cognition. TT5’s awareness with the variety in learner participation starts with his classroom observations and his reflections on the classroom parameters in these observations. Moreover, his reflections also reveal the influence of ‘courses in teacher education’

on shaping his teacher beliefs (see analyses for the theme of ‘teacher education’ in previous sections of the findings chapter).

“The students sitting next to the wall didn’t raise their hands. They were listening, but they didn’t participate in the lesson. I think they didn’t understand anything because their English level is really bad. ... And, Elif teacher continued the lesson with the students who raised their hands. ... In our courses [in teacher education], I have learned that we need to address all of the learners, good or bad in a class.”
(TT5, Stage I, Reflective Journal 6)

With a similar concern with the variety in learners’ reported level of participation, TT5 talks about the passive students during his teaching practice in a post-observation conference (see Extract 9 below), and he indicates the low language proficiency as the reason of learners’ not participating in the lesson. His beliefs and behaviours regarding the variety in learners’ reported level of participation create a cognitive/emotional dissonance which may have the potential to turn into a growth point.

Extract 9. (TT5, Stage IV, Post-OC 4)

- 01 TT5: ders fena değildi aslında hocam
the lesson was not so bad hocam
- 02 ama bazı öğrenciler derse katılmadı
but some students didn't participate in the lesson
- 03 derse katılanlar hep aynı kişilerdi
it was all the same students who participated in the lesson
- 04 hep onlar el kaldırdı
it was them who raised hands
- 05 diğerleri pasifti
the others were passive
- 06 TE: off-topic öğrenciler vardı evet
yes there were off-topic students
- 07→ neden katılmadı peki sence o grup?
why do you think that group didn't participate in?
- 08→ TT5: hmm (.) bence onların İngilizce seviyesi diğerlerinden daha düşük
hmm (.) I think their English proficiency is lower than the others
- 09→ diğer derslerde de böyleler maalesef
unfortunately they are like this in the other lessons too
- 10→ TE: uh-hm (.) ne yapılabilir bu konuda peki?
uh-hm (.) what can be done about this issue then?

- 11 kendi hallerine bırakmamalıyız değil mi?
we shouldn't leave them on their own right?
- 12 TT5: yok haklısınız
no you are right
- 13→ dikkatlerini çekmek için dersi daha ilginç hale getirebiliriz
we can make the lesson more interesting to get their attention
- 14→ ya da daha basit anlatılabilir onlar için mesela
or we can teach in a simpler way for them for example
- 15 TE: kesinlikle
absolutely

((Upon this dialogue, TE asks another question about TT5's teaching practice, and they start talking about it))

In Extract 9, with line 01, TT5 starts evaluating his teaching practice upon TE's asking his opinion about the lesson. TT5 carries out a mitigated evaluation as he describes his lesson as not being so bad, and he starts talking about some students' not participating in the lesson (Line 02) and that "*it was all the same students who participated in the lesson*" (Line 03). After TT5 again refers to the other students' passiveness in the lesson (Line 04 & Line 05), TE confirms TT5's observation of passive students by saying "*yes there were off-topic students*" in Line 06 and demonstrates her orientation in a mutual engagement with a shared past event. Following this agreement, TE applies to a conversational ground rule (Mercer, 2000) and directs a question in soliciting for TT5's expert teacher thinking with the aim to orient TT5 to possible reasons behind this passive student behaviour (Line 07, '*why do you think that group didn't participate in?*'). With this question, TE expands the IDZ and creates space for interthinking. In this co-established IDZ, both TE and TT5 stay attuned to each other's changing states of knowledge, understanding, and emotions. Accordingly, TT5 responds to the mediation, and provides his ideas about the reasons for learners' passiveness (Line 08, '*hmm (.) I think their English proficiency is lower than the others*'). In the next line, he specifies his observations that these students behave the same in the other lessons, as well (Line 09).

In Line 10, TE uses explicit mediation and tries to awaken TT5's expert teacher thinking by asking another direct question, and she preserves the IDZ in which she orients TT5 to the alternative instructional practices to reach out the students unwilling to participate ('*uh-hm (.) what can be done about this issue*

then?'). Without following for an answer, TE puts her expert stance in an explicit mediation in Line 11 (*'we shouldn't leave them on their own right?'*). By making her expert's teacher thinking transparent in an explicit mediation, TE mediates TT5's teacher learning activity within the IDZ through demonstrating a cued elicitation for the alternative instructional practices. Within this space for responsive mediation, TE tries to draw TT5's attention into a shared understanding of the importance of dealing with all types of learners with different orientations to language learning. After TT5 provides a confirmation in Line 12 (*'no you are right'*), he continues to display his expert notion of creating learning opportunities for unwilling students (Line 13, *'we can make the lesson more interesting to get their attention'* & Line 14, *'or we can teach in a simpler way for them for example'*), which is confronted with TE's confirmation in Line 15 (*'absolutely'*).

In Extract 9, through responsive mediation in a co-established IDZ, TT5's cognitive/emotional dissonance comes into being as a growth point in which he experiences a heightened sense of awareness for what he believes and what he does regarding the factor of 'variety in learners' reported level of participation'. It is also identified that the direct and cued elicitations in responsive mediation used by TE helped TT5 to reveal the thoughts and feelings about what is happening in his class. IDZ here helped TT5 to articulate these feelings and thoughts beyond what may be difficult for him to express alone. At the end, what TE and TT5 uncover is that TT5 attains a more increased sense of expert thinking regarding the issue of classroom participation than his performance indicates. TT5's increased awareness of the variety among the learners leads to an internalization for creating learning opportunities for each student in the classroom. Based on this internalization, TT5 finds a relationship between his experiences and formative assessment in the following reflective practices. The signs of his formative assessment cognition under construction can be followed in the remaining dataset of the relevant stage.

"I realized that there were students who didn't understand anything about the lesson because their English is bad. But, I didn't want to interrupt the flow of the lesson, and continued with the ones who participated in the lesson. ... If I didn't have concern about finishing my lesson in time, I would have focused on these students more." (TT5, Stage IV, Interview 8)

The excerpt from Interview 8 indicates us that TT5 experiences a cognitive/emotional dissonance because of the contradictions between what he believes, knows and what he does (see TT5, Stage I, Reflective Journal 6). He notices the gap between the lesson in his vision and the real instructional practices he conducted. He relates the reason of his not acting on a perceived problem to the time limitation for each teaching practice, and this brings out a broader contextual factor into the stage – practicum as a contextual factor in teacher education in Turkish EFL context. Although TT5 notices a problem with student participation, he feels obliged to continue with the participating students in order to cover the lesson plan and complete the teaching practice on time. These dissonances guide TT5 to shape his formative assessment teacher cognition around the factor of ‘variety in learners’ reported level of participation’.

“I noticed the students who weren’t listening or who didn’t understand, but I couldn’t do anything about it unfortunately. So, I continued the lesson with the other students. ... I could try to explain in a simpler way. In this way, they would be more active during the task. ... so, KS1 was not there for everybody.” (TT5, Stage IV, Reflective Journal 13)

TT5’s reflections on his formative classroom practices based on the framework for the aspects of formative assessment (William & Thompson, 2008) display his concerns over his inaction on the perceived problem of student passiveness caused by a classroom-specific micro contextual factor - variety in student participation. After self-examining his classroom practice, TT5 re-examines the alternatives that he could have conducted for a successful task completion, and thus, in order to create learning opportunities for every student. Thereafter, TT5 displays his engagement with the concept of formative assessment by evaluating his practice with the absence of KS1 (Clarifying learning intentions and criteria for success). The trajectory of TT5’s dataset under the framework of the contextual factor of ‘variety in learners’ reported level of participation’ indicates his awareness of the learner diversity in the classroom. He, in fact, assesses students’ knowledge, understanding, and learning based on these criteria through identifying ‘where the learner is going’ and ‘where the learner is right now’ (ibid., 2008). Can Daşkın (2017) highlights on the fact that formative assessment is active in nature as it involves interpreting and acting upon the evidence after accessing evidence of student

understanding. Although TT5 did not act upon the evidence he attained through observation, his reflections on the alternative instructional practices and formative assessment may be a sign for that his language teacher cognition of formative assessment is open to development.

TT8 is another participant pre-service language teacher whose development of formative assessment teacher cognition has been influenced by the factor of 'variety in learners' reported level of participation'. In the trajectory of TT8's construction of teacher cognition, the effects of classroom-specific contextual factors are observable. Similar to TT5, TT8 refers to the issue of learner diversity in terms of classroom participation, which she notices during her classroom observations in Stage I.

"A teacher shouldn't carry out the lesson only with active and more successful students. Some students may always raise their hands and want to participate, but we shouldn't ignore the passive ones only because they don't raise hands. ... Its reason may be their low proficiency of English. ... But unfortunately, I always see the same students on the stage." (TT8, Stage I, Interview 3)

TT8's remarks above illustrate the influence of TT8's *perezhivanie* (lived experiences) and *obuchenie* (teaching/learning) on shaping her initial teaching-related beliefs. In the remaining of the same interview, she shares her own experiences as a language learner about the same issue: "I was a very active student in English lessons, and our teacher would always let me speak. But unfortunately, I had friends who hated me because of this reason" (TT8, Stage I, Interview 3). This statement indicates the influence of past learning experiences on shaping her initial teacher cognition (see analyses for the theme of 'prior language learning experiences' in previous sections of the findings chapter). In line with the exploration of teaching-related beliefs, TT8 continues to shape her language teacher cognition around the same contextual factor - 'variety in learners' reported level of participation'.

"Through my observations, I made a distinction between unsuccessful and successful students. On one side, there are students who are willing to participate, and on the other side, there are those students who are unwilling. I think there are huge differences among students in terms their language levels. ...During my teaching practice, I wanted to address to the students with low English proficiency,

too. That's why, I got closer to them to have a better communication with them.”
(TT8, Stage III, Interview 7)

In above-illustrated interview conducted after TT8's third observed teaching practice, TT8 again refers to the effects of variety in student participation on her instructional practices in which she prefers to pay more attention to the students with low proficiency levels. TT8 explains the reason of this interactive decision as providing equal learning opportunities for every student in the classroom. “I thought that if I focus more on the active group all the time, I may lose the other students” (TT8, Stage III, Interview 7). TT8's beliefs about creating learning opportunities are supported by her classroom practices in which she made extra explanations both in a simpler way in the target language and in students' native language by taking her action zone closer to those groups of students (TT8, Stage III, Classroom Observation 3). TT8's self-examination of her instructional practices and her teaching behaviours during classroom practice may be the signs of her increased understanding of formative classroom practices. Furthermore, by reaching out a consistency between what she believes, knows, feels and what she does, TT8's cognitive/emotional dissonance regarding the variety in student participation turns into potential growth points. Within her ZPD, these growth points may contribute to the construction of TT8's formative assessment teacher cognition. According to Li (2020), it is an essential step for teacher learning to identify the space for ZPD and teachers' growth point.

TT8 also reflects on her assessment of the student understanding and her acting upon this evidence of student learning by relating these to some critical aspects of formative assessment in her reflective writing.

“When I look back at my lesson, I can say that I was successful at KS1, KS2, KS3. Firstly, I wanted everybody to understand my lesson, I elicited evidence of student understanding and did something for it. So, I re-explained some parts of the instructions again and again. At some points, instead of talking to the whole class, I went next to some students and showed examples so that they could understand what we were doing. ... I believe that I provided the necessary support to move them forward, at least for this lesson.” (TT8, Stage III, Reflective Journal 12)

The trajectory of TT8's dataset around the factor of 'variety in learners' reported level of participation' has led us to identify TT8' internalization and appropriation of

the concept of formative assessment. Internalization is a transformative process through which an individual's cognitive structure can be changed, so it is not a direct transfer of skills and knowledge (Johnson & Golombek, 2011). This transformative process also indicates that learning and development occur through social interaction, and learning is a process of internalization through which knowledge and skills are transformed from social plane to cognitive plane (Walqui, 2006). After eliciting the evidence of student understanding deteriorated by their unwillingness, TT8 acts upon this evidence by applying to re-explanation, explaining in a simpler way, showing examples, switching to Turkish, and attending to the learners individually or in small groups (TT8, Stage III, Classroom Observation 3). The level of TT8's intervention of this kind is unplanned, comes out of 'in-flight decision making' (Yin, 2010), and it is responsive to the 'assessment in action' (Rea-Dickins, 2001). By connecting these instructional practices with the aspects of formative assessment (KS1, KS2, KS3, see Figure 3 for the framework by William & Thompson, 2008), TT8 engages with the concept of formative assessment and gains a heightened awareness, which may enable TT8 appropriate it as a psychological tool in the process of learning-to-teach, and ultimately in directing her future teaching activity.

As the participant pre-service teachers were involved in reflective practices based on formative assessment and also exposed to theoretical and practical input in their last year of teacher education, it was observed that they started to realise aspects of teaching and learning beyond their pre-existing beliefs by revealing possibilities that they start to expand their knowledge and understandings. The realisation and expansion of their beliefs can be associated with the input from the courses, reflective practices conducted in the present case study, and formative classroom practices. They spent effort while putting new ideas into practice. They might add these new insights into their pre-existing belief system, but such realisation might not necessarily lead to certain changes. However, realisation of new insights is an essential stage, if any changes are to take place at a later stage as "changes in human beliefs require time" (Mattheoudakis, 2007, p. 1283).

Overview of the construction process of formative assessment cognition regarding the contextual factors. The present section of the findings chapter scrutinized ‘contextual factors’ as one of the components influencing participant pre-service language teachers’ construction of formative assessment cognition. Furthermore, it analysed the construction process of this cognition around the same influential factor, and it examined the link between participants’ construction of formative assessment cognition and the process of learning-to-teach. The theme of ‘contextual factors’ has been examined with a specific emphasis on the immediate professional community which consists of two pivotal factors: ‘mentor teacher’s recommendations’ and ‘variety in learners’ reported level of participation’.

An overview of the findings regarding ‘mentor teacher’s recommendations’ as a factor influencing the construction of language teacher cognition of formative assessment is provided in Table 21 below and presented with the examples from the trajectory of TT7’s dataset. As demonstrated in Table 21, the code of ‘mentor teacher’s recommendations’ is encountered as a contextual factor in the participants’ reflections on their practicum experiences. For example, in TT7’s dataset, the factor of mentor teacher’s recommendations is first encountered when TT7 criticizes the mentor teacher’s practices by stating her concerns for exam- and curriculum-oriented instructional practices: “She designs her lessons just for upcoming exams or to finish a unit in the coursebook” (TT7, Stage I, Interview 3). TT7 also reveals her discontent with the pressure for the obligation of implementing some certain instructional practices which are requested by the mentor teacher (“I wish I had more freedom to choose the topic or materials for my teaching practices, but unfortunately Elif teacher decides on the main parts”, TT7, Stage I, Reflective Journal 10). Additionally, we witness TT7’s concerns about applying mentor teacher’s recommendations in her teaching practices as she experiences a cognitive/emotional dissonance between what she believes and what is recommended by the mentor teacher (see TT7, Stage II, Interview 6). Triggered by these concerns, TT7 discloses her thoughts, during a post-observation conference with TE, about a last-minute change requested by the mentor teacher in the execution of her teaching practice and again reveals her cognitive/emotional dissonance related to mentor teacher recommendations (see TT7, Stage III, Post-

OC 3, Extract 8). However, after being scaffolded by TE in the IDZ, we come across with appropriation and internalization of the scaffolded discussion on the mentor teacher's recommendation as its influence is reflected on TT7's shaping her formative assessment cognition ("During that short activity, I tried to understand what they know and don't know, and I gave feedback", TT7, Stage III, Reflective Journal 12). In the trajectory of TT7's dataset, 'mentor teacher's recommendations' is an important contextual factor influencing the construction of formative assessment teacher cognition, and we can follow TT7's internalization and appropriation of the scaffolded alternative interpretation of a perceived negative experience which was attributed to the mentor teacher's recommendation (see TT7, Stage III, Reflective Journal 12). In TT7's dataset, we cannot deny the effects of the mentor teacher's recommendations on the way she perceives language teaching and shapes her teacher beliefs, which, at the end, helps her to notice a formative classroom practice which she conducted unconsciously (see Table 21 for an overview of the factor 'mentor teacher's recommendations' in the samples from TT7's dataset).

Table 21

Overview of The Code 'Mentor Teacher's Recommendations' as A Factor Influencing the Construction of Formative Assessment Cognition

Participant	Theme	Code	Summary of Findings	Sample Excerpts
TT7	Contextual Factors	Mentor teacher's recommendations	- criticizing the mentor teacher's practices by stating concerns for exam- and curriculum-oriented instructional practices	- TT7, Stage I, Interview 3 <i>"Elif teacher is a traditional teacher"</i> <i>"When we asked about the teaching methods she uses, she only talked about the exams and the curriculum"</i> <i>"She designs her lessons just for upcoming exams or to finish a unit in the coursebook"</i>
TT7	Contextual Factors	Mentor teacher's recommendations	- revealing discontent with the pressure for the obligation of implementing some certain instructional practices which are requested by the mentor teacher	- TT7, Stage I, Reflective Journal 10 <i>"I wish I had more freedom to choose the topic or materials for my teaching practices, but unfortunately Elif teacher decides on the main parts"</i>
TT7	Contextual Factors	Mentor teacher's recommendations	- revealing her concerns about applying mentor teacher's recommendations in her teaching practices	- TT7, Stage II, Interview 6 <i>"For my next teaching practices, I would like to have some group-work activities, but our mentor teacher warned us against group-work"</i> <i>"She says that you lose classroom discipline when students work in groups, and it is better if we don't have group-work activities"</i> <i>"I don't know. I don't think like her"</i>

Participant	Theme	Code	Summary of Findings	Sample Excerpts
TT7	Contextual Factors	Mentor teacher's recommendations	<ul style="list-style-type: none"> - with a similar concern about the mentor teacher's recommendations, TT7 discloses her thoughts about a last-minute change requested by the mentor teacher in the execution of TT7's teaching practice - revealing her cognitive/emotional dissonance related to mentor teacher recommendations 	- TT7, Stage III, Post-OC 3, Extract 8
TT7	Contextual Factors	Mentor teacher's recommendations	- appropriation and internalization of the scaffolded discussion on the mentor teacher's recommendation as its influence is reflected on TT7's shaping her formative assessment cognition	<p>- TT7, Stage III, Reflective Journal 12</p> <p><i>"At first I didn't want to go out of my plan because the time is limited. But, our mentor teacher asked me to go over a few things before starting my own lesson"</i></p> <p><i>"Now I can see that it was not as bad as I thought because it helped students to do my tasks better"</i></p> <p><i>"During that short activity, I tried to understand what they know and don't know, and I gave feedback"</i></p>

In addition to being a factor influencing the construction of formative assessment teacher cognition, 'mentor teacher's recommendations' also creates a space for reflection in TT7's dataset, which turns out to be a means for the development of teacher cognition. The major shifts occurring around the factor of 'mentor teacher's recommendations' in TT7's dataset have been scrutinized based on the major stages of the cognition construction process as illustrated in Table 6. An overview of these major shifts in TT7's dataset will be illustrated in Table 22 below. By iteratively coding and analysing TT7's dataset over time, the researcher could track the trajectory of her cognitive development of the concepts related to formative assessment, which also helped to discover various individual, social, and contextual factors effective in TT7's learning-to-teach process.

At different stages of her cognition construction, we witness TT7's heightened awareness through the dissonances she beholds for her own teacher beliefs and mentor teacher's practices and recommendations. For example, TT7 criticizes the mentor teacher's practices by stating concerns for exam- and curriculum-oriented instructional practices (TT7, Stage I, Interview 3), and she reveals her discontent with the pressure for the obligation of implementing some certain instructional practices which are requested by the mentor teacher and the concerns about applying mentor teacher's recommendations in her teaching practices (TT7, Stage I, Reflective Journal 10; Stage II, Interview 6). TT7's awareness gets strengthened when she experiences the dilemma between what she believes and what mentor teacher does (TT7, Stage I, Interview 3) and when she discovers the contradictions between the language teaching and learning environment in her vision and the one in reality mandated by broader contextual factors like testing and curriculum policies ("I know that they are trying to finish the coursebook and getting ready for the exams. But I believe this creates boring lessons", TT7, Stage I, Reflective Journal 10). In accordance with these, TT7's awareness again reveals itself with her exploration of teaching-related beliefs as she states her ideas for the mandatory implementations caused by broader contextual factors (TT7, Stage I, Reflective Journal 10).

As TT7's formative assessment teacher cognition is being shaped, she starts to self-examine her own beliefs, knowledge, and instructional practices, especially the ones recommended by the mentor teacher. For instance, TT7, in a space shaped by responsive mediation, examines her own instructional practices by

focusing on the perceived negative experience caused by the mentor teacher's recommendation, identifies the instructional practices where she focused on assessing student knowledge and learning, and concentrates on any possible advantage of adding a revision activity into her previously designed lesson plan (TT7, Stage III, Post-OC 3, Extract 8).

Through increased awareness and understanding, TT7 builds on her cognition through engagement with the concept of formative assessment as she orients to a shared understanding of the benefits of revision activity and utilizes the perceived negative experience of revision activity in the IDZ. Upon this, TT7 notifies her awareness in recognizing the level of student knowledge with this revision activity and develops a different perspective for the last-minute revision recommended by the mentor teacher. These help her to recognize the teaching moments for the assessment of student learning and knowledge and acting on it to compensate for the deficiency in students' knowledge. Thereafter, with the help of responsive mediation, she manages to turn her cognitive/emotional dissonance related to mentor teacher's recommendations into potential growth points for the construction and development of formative assessment teacher cognition (TT7, Stage III, Post-OC 3, Extract 8). Accordingly, the following data analysis supports TT7's appropriation and internalization of the scaffolded discussion on the mentor teacher's recommendation as its influence is reflected on TT7's shaping her formative assessment cognition. Through this engagement with the concept of formative assessment, TT7 explains the relation of her instructional practices to the aspects of formative assessment in the framework and preserves the heightened sense of awareness regarding the assessment of student knowledge and learning (TT7, Stage III, Reflective Journal 12). TT7's engagement with the concept of formative assessment continues since she relates her instructional practices with in-class assessment of student knowledge as a sign for her developing and changing language teacher cognition and gains a more critical perspective towards mentor teacher recommendations (TT7, Stage III, Interview 7). For an overview of TT7's construction process of formative assessment cognition regarding 'mentor teacher's recommendations', see Table 22 below.

Table 22

*Overview of the Construction Process of Formative Assessment Cognition
Regarding 'Mentor Teacher's Recommendations'*

Participant: TT7

Theme: Contextual Factors

Code: Mentor teacher's recommendations

- dissonance - Stage I, Interview 3
 - criticizing the mentor teacher's practices by stating concerns for exam- and curriculum-oriented instructional practices
 - discovering the differences between what she believes and what mentor teacher does

- dissonance - Stage I, Reflective Journal 10
 - revealing her discontent with the pressure for the obligation of implementing some certain instructional practices which are requested by the mentor teacher
 - discovering the differences between the language teaching and learning environment in her vision and the one in reality mandated by broader contextual factors like testing and curriculum policies

TT7-Major
Shift 1

- dissonance - Stage II, Interview 6
 - revealing her concerns about applying mentor teacher's recommendations in her teaching practices
 - cognitive/emotional dissonance concerning the confusion about the implementation of group-work activities

- dissonance - Stage III, Post-OC 3, Extract 8
 - disclosing her thoughts about a last-minute change requested by the mentor teacher in the execution of TT7's teaching practice
 - reveals her dissatisfaction with the implementation of revision requested and suggested by the mentor teacher

-
- exploration of teaching-related beliefs - Stage I, Reflective Journal 10
 - stating the awareness of the mandatory implementations caused by the limitations of broader contextual factors like testing and curriculum policies

TT7-Major
Shift 2

- exploration of teaching-related beliefs - Stage II, Interview 6
 - stating her disagreement with the idea that the implementation of group-work activities creates classroom discipline problems
-

TT7-Major Shift 3	<ul style="list-style-type: none"> - self-examination - Stage III, Post-OC 3, Extract 8 • examining her own instructional practice by focusing on the perceived negative experience caused by the mentor teacher's recommendation • identifying the instructional practices where she focused on assessing student knowledge and learning • concentrating on any possible advantage of adding a revision activity into her previously designed lesson plan
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TT7-Major Shift 4	<ul style="list-style-type: none"> - approval - Stage III, Post-OC 3, Extract 8 • orienting to a shared understanding of the benefits of revision activity • utilising the perceived negative experience of instruction-giving in the IDZ • notifying her awareness in recognizing the level of student knowledge with this revision activity • developing a different perspective for the last-minute revision recommended by the mentor teacher • notifying the assessment of student learning and knowledge and acting on it to compensate for the deficiency in students' knowledge • turning her cognitive/emotional dissonance related to mentor teacher's recommendations into potential growth points for the construction and development of formative assessment teacher cognition <ul style="list-style-type: none"> - approval - Stage III, Reflective Journal 12 • appropriation and internalization of the scaffolded discussion on the mentor teacher's recommendation as its influence is reflected on TT7's shaping her formative assessment cognition • explaining the relation of her instructional practices to the aspects of formative assessment in the framework • preserving the heightened sense of awareness regarding the assessment of student knowledge and learning <ul style="list-style-type: none"> - approval - Stage III, Interview 7 • engagement with the concept of formative assessment since she relates her instructional practices with in-class assessment of student knowledge as a sign for her developing and changing language teacher cognition • gaining a more critical perspective towards mentor teacher recommendations
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Table 23 below indicates that 'mentor teacher's recommendations' as a contextual factor was influential in the construction process of language teacher cognition for half of the participants. It was not an influential factor in the construction of teacher cognition in the datasets of TT1, TT2, TT6, and TT8. However, as data analysis reveals, this factor was effective for some participants (TT3, TT4, TT5, and

TT7) in the formation of teacher cognition, and it created a trajectory with the major shifts of dissonance, exploration of teaching-related beliefs, self-examination, re-examination of alternatives, and approval as it is displayed in Table 23 below.

Table 23

The Construction Process of Formative Assessment Teacher Cognition Around the Factor of ‘Mentor Teacher’s Recommendations’

	dissonance	exploration of teaching-related beliefs	self-examination	re-examination of alternatives	approval	integration
TT1	-	-	-	-	-	-
TT2	-	-	-	-	-	-
TT3	√	√	√	√	-	-
TT4	-	√	√	-	√	-
TT5	√	√	-	√	√	-
TT6	-	-	-	-	-	-
TT7	√	√	√	-	√	-
TT8	-	-	-	-	-	-
TOTAL	3	4	3	2	3	-

‘Variety in learners’ reported level of participation’ is another contextual factor effective in the construction process of language teacher cognition. Table 24 below demonstrates the trajectory for the construction process of pre-service language teachers’ cognitions related to formative assessment around this factor with examples from datasets of TT5 and TT8.

Table 24

*Overview of the Construction Process of Formative Assessment Cognition
Regarding 'Variety in Learners' Reported Level of Participation'*

Participant: TT5

Theme: Contextual Factors

Code: Variety in learners' reported level of participation

- dissonance - Stage I, Reflective Journal 6
 - criticizing the mentor teacher's practices by stating concerns for reaching out every type of student in the classroom
 - discovering the differences between what he believes and what mentor teacher does

- dissonance - Stage IV, Post-OC 4, Extract 9
 - his beliefs and behaviours regarding the variety in learners' reported level of participation create a cognitive/emotional dissonance

TT5-Major
Shift 1

- dissonance - Stage IV, Interview 8
 - experiencing a cognitive/emotional dissonance because of the contradictions between what he believes, knows and what he does
 - noticing the gap between the lesson in his vision and the real instructional practices he conducted

- dissonance - Stage IV, Reflective Journal 13
 - concerns over his inaction on the perceived problem of student passiveness caused by a classroom-specific micro contextual factor

-
- exploration of teaching-related beliefs - Stage I, Reflective Journal 6
 - expressing thoughts about the variety in learner participation in his classroom observations
 - reflections on the classroom parameters in these observations

TT5-Major
Shift 2

- exploration of teaching-related beliefs - Stage IV, Post-OC 4, Extract 9
 - talking about the passive students during his teaching practice
 - indicating the low language proficiency as the reason of learners' not participating in the lesson
-

	<ul style="list-style-type: none"> - self-examination - Stage IV, Post-OC 4, Extract 9 • evaluating his teaching practice in terms of student participation
TT5-Major Shift 3	<ul style="list-style-type: none"> - self-examination - Stage IV, Interview 8 • reflecting on his own actions in terms of low student participation and his not acting on it • relating the reason of his not acting on a perceived problem to the time limitation for teaching practices
TT5-Major Shift 4	<ul style="list-style-type: none"> - re-examination of alternatives - Stage IV, Post-OC 4, Extract 9 • coming up with the ideas of alternative instructional practices to foster student participation • re-examining the alternatives that he could have conducted for a successful task completion, and thus, in order to create learning opportunities for every student
	<ul style="list-style-type: none"> - approval - Stage IV, Post-OC 4, Extract 9 • TT5's increased awareness of the variety among the learners leads to an internalization for creating learning opportunities for each student in the classroom
TT5-Major Shift 5	<ul style="list-style-type: none"> - approval - Stage IV, Interview 8 • founding a relationship between his experiences and formative assessment - approval - Stage IV, Reflective Journal 13 • stating the relationship between his instructional practices and formative assessment • displaying his engagement with the concept of formative assessment by evaluating his practice with the absence of KS1
Participant: TT8	
Theme: Contextual Factors	
Code: Variety in learners' reported level of participation	
TT8-Major Shift 1	<ul style="list-style-type: none"> - dissonance - Stage I, Interview 3 • criticizing the mentor teacher's practices by stating concerns for reaching out every type of student in the classroom • discovering the differences between what she believes and what mentor teacher does
TT8-Major Shift 2	<ul style="list-style-type: none"> - exploration of teaching-related beliefs - Stage I, Interview 3 • expressing thoughts about the variety in learner participation in her classroom observations

TT8-Major Shift 3	<ul style="list-style-type: none"> - self-examination - Stage III, Interview 7 • referring to the effects of variety in student participation on her instructional practices • preferring to pay more attention to the students displaying unwillingness to participate
TT8-Major Shift 4	<ul style="list-style-type: none"> - approval - Stage III, Interview 7 • explaining the reason of her interactive decision as providing equal learning opportunities for every student in the classroom • reaching out a consistency between what she believes, knows, feels and what she does - approval - Stage III, Classroom Observation 3 • TT8's beliefs about creating learning opportunities are supported by her classroom practices in which she made extra explanations both in a simpler way in the target language and in students' native language by taking her action zone closer to those groups of students
TT8-Major Shift 5	<ul style="list-style-type: none"> - integration - Stage III, Classroom Observation 3 • eliciting the evidence of student understanding deteriorated by their unwillingness • acting upon this evidence by applying to re-explanation, explaining in a simpler way, showing examples, switching to Turkish, and attending to the learners individually or in small groups - integration - Stage III, Reflective Journal 12 • internalization and appropriation of the concept of formative assessment • expressing achievement in the implementation of formative assessment

Table 25 below represents 'variety in learners' reported level of participation' as another contextual factor effective in the formation of language teacher cognition. The table shows the frequency of the major shifts experienced by the participants while shaping their formative assessment teacher cognition. The trajectory of this formation for all participants can be followed in Table 25.

Table 25

The Construction Process of Formative Assessment Teacher Cognition Around the Factor of ‘Variety in Learners’ Reported Level of Participation’

	dissonance	exploration of teaching-related beliefs	self-examination	re-examination of alternatives	approval	integration
TT1	√	√	√	-	√	-
TT2	-	√	√	√	-	-
TT3	-	√	-	√	-	-
TT4	√	√	√	-	-	-
TT5	√	√	√	√	√	-
TT6	-	-	-	-	-	-
TT7	-	-	-	-	-	-
TT8	√	√	√	-	√	√
TOTAL	4	6	5	3	3	1

Summary of the findings. In this chapter of the present study, findings from the qualitative data analysis were presented. The analyses mainly focused on formative assessment teacher cognition in L2 teacher education context with a sociocultural perspective and the construction process of these cognitions and practices throughout school experience and practice teaching courses in an academic year. Accordingly, the main aim of the present chapter was to reveal the factors that influence the construction of pre-service language teachers’ formative assessment cognition and to describe the major shifts in pre-service language teachers’ cognitions through the lens of sociocultural theory. Within this framework, it was also aimed to examine how sociocultural resources mediate the construction process of formative assessment teacher cognition. The analyses in this section were conducted by implementing grounded content analysis and sociocultural discourse analysis as data analysis methods under the analytical frameworks of sociocultural theory and genetic analysis. The design of reporting was framed around the main themes found in the present study. Units of analysis were reported

based on the framework provided by the research questions: the factors influencing the construction of formative assessment cognition, how the construction of this cognition progresses, and how sociocultural resources mediate the construction process of formative assessment teacher cognition. The reports of the analyses also referred to the relation of these constructs to the process of learning-to-teach.

The analysis of influential factors shaping formative assessment cognition and its construction process revealed three main themes: 1) prior language learning experiences, 2) teacher education, 3) contextual factors. These themes separated into sub-themes: 1a) teachers in the past, assessment in the past; 2b) courses in teacher education: teaching-related courses, micro-teachings; and 3c) mentor teacher's recommendations, variety in learners' reported level of participation. Table 26 below presents the major themes and sub-themes identified across the case along with their frequencies.

Table 26 indicates us that 'courses in teacher education / teacher education' ($n = 60$) was the most influential factor in the construction process of formative assessment teacher cognition. Descriptive analysis indicates that 'prior language learning experiences' ($n = 47$) is the second influential factor in the overall datasets from all participants. Lastly, the influence of 'contextual factors' was identified as the third with the frequency of $n = 37$. In terms of the comparison among the sub-themes, 'teaching-related courses' ($n = 41$) is the most influential factor in the construction of formative assessment cognition, which is followed by the participants' previous encounters with the assessment, 'assessment in the past' ($n = 26$). The order of the impact on language teacher cognition for the other sub-themes is as follows: 'teachers in the past' ($n = 21$), 'variety in learners' reported level of participation' ($n = 21$), 'micro-teaching' ($n = 19$), and 'mentor teacher's recommendations' ($n = 16$).

Table 26

Influential Factors In The Construction of Pre-service Language Teachers' Formative Assessment Cognition

Participants	prior language learning experiences						teacher education (courses in teacher education)						contextual factors					
	teachers in the past		assessment in the past		TOTAL		teaching- related courses		micro-teaching		TOTAL		mentor teacher's recommendations		variety in learners' reported level of participation		TOTAL	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
TT1	5	23.8	3	11.5	8	17.02	6	14.6	3	15.7	9	15	-	-	3	14.2	3	8.1
TT2	2	9.5	8	30.7	10	20.2	4	9.7	7	36.8	11	18.3	-	-	2	9.5	2	5.4
TT3	1	4.7	-	-	1	2.1	4	9.7	3	15.7	7	11.6	4	25	1	4.7	5	13.5
TT4	6	28.5	2	7.6	8	17.02	5	12.1	-	-	5	8.3	3	18.7	4	19.04	7	18.9
TT5	2	9.5	7	26.9	9	19.1	6	14.6	-	-	6	10	3	18.7	6	28.5	9	24.3
TT6	-	-	1	3.8	1	2.1	3	7.3	1	5.2	4	6.6	-	-	-	-	-	-
TT7	3	14.2	2	7.6	5	10.6	5	12.1	3	15.7	8	13.3	6	37.7	-	-	6	16.2
TT8	2	9.5	3	11.5	5	10.6	8	19.5	2	10.5	10	16.6	-	-	5	23.8	5	13.5
TOTAL	21	100	26	100	47*	100	41	100	19	100	60*	100	16	100	21	100	37*	100

*'n' represents the number of each code that occurred in the dataset of the relevant participant trainee teacher

Table 27

The Trajectory for the Construction Process of Formative Assessment Teacher Cognition

Construction Process	Prior language learning experiences			Teacher education (courses in teacher education)			Contextual factors			OVERALL TOTAL
	teachers in the past	assessment in the past	TOTAL	teaching-related courses	micro-teaching	TOTAL	mentor teacher's recommendations	variety in learners' reported level of participation	TOTAL	
	n	n	f	n	n	f	n	n	f	
dissonance	4	7	11	6	5	11	3	4	7	29
exploration of teaching-related beliefs	3	5	8	8	6	14	4	6	10	32
self-examination	4	1	5	4	4	8	3	5	8	21
re-examination of alternatives	2	3	5	4	3	7	2	3	5	17
approval	3	2	5	6	4	10	3	3	6	21
integration	-	1	1	1	1	2	-	1	1	4

*'n' represents the number of participants experiencing the relevant process around the relevant influential factor

*'f' represents the frequency of the major shifts experienced by the participants around the relevant influential factor

The construction process of language teacher cognition was explained with the major shifts as the indicators for how the construction of formative assessment teacher cognition progresses. There are six themes to describe the construction process in detail: dissonance, exploration of teaching-related beliefs, self-examination, re-examination of alternatives, approval, and integration (see Table 6). At this point, it must be noted that labelling the instances of formative assessment teacher cognition was conducted around the sociocultural factors like participants' *perezhivanie* (lived experiences) and *obuchenie* (teaching/learning). Furthermore, it must be reinstated that the construction process was not linear, and it occurred around the main factors forming participants' teacher cognition. It should also be noted that not every participant followed the same steps in the same order nor do all participants experienced all these processes in the same amounts as it is exemplified in Table 11, 14, 18, 19, 23, 25, and 27.

Table 27 above illustrates the trajectory for the construction process of pre-service language teachers' cognitions related to formative assessment. In the table, 'n' represents the number of participants experiencing the relevant process around the relevant influential factor, and 'f' stands for the frequency of the major shifts experienced by the participants around the relevant influential factor. In this table, it is clearly seen that factors influential in the construction of language teacher cognition did not follow identical paths in the process of construction. For example, participants experienced the stage of 'dissonance' at the same amounts while building on their teacher cognition under the influence of their 'prior language learning experiences' ($f = 11$) and 'teacher education' ($f = 11$); however, it is less than this ($f = 7$) in the situation of 'contextual factors'. In the process of 'dissonance', participants perceived an inconsistency between their existing beliefs and newly presented information; vision and the reality; beliefs and practices; beliefs and observations. They experienced a disorienting dilemma and confusion, noticed some gaps between vision and reality and experienced cognitive/emotional dissonances out of these inconsistencies and contradictions. Moreover, around each influential factor, the participants had a chance to explore their teaching-related beliefs and made connections between these beliefs and their experiences (*prior language learning experiences*, $f = 8$; *courses in teacher education*, $f = 14$; *contextual factors*, $f = 10$). In this process, participants realised or became more

aware of a construct, idea or process by making connections between beliefs, observations, practices, and experiences. The fact that 'courses in teacher education' was the most influential factor in the exploration of teaching-related beliefs can be originated from the fresh knowledge and experience the participant pre-service English teachers attained through teacher education. Besides, the factor of 'teacher education' was found to be the most effective element ($n = 60$) shaping formative assessment teacher cognition (see Table 26). Throughout the process, some participants managed to develop a critical eye on their own instructional practices and formative assessment through self-examination (*prior language learning experiences*, $f = 5$; *courses in teacher education*, $f = 8$; *contextual factors*, $f = 8$). In the process of self-examination, participants developed a critical eye on their own instructional practices, beliefs, feelings, and knowledge. By shaping their formative assessment teacher cognition further, they focused on the idea of successful teaching and student learning and discussed the alternative instructional practices for formative assessment in the process of 're-examination of alternatives' (*prior language learning experiences*, $f = 5$; *courses in teacher education*, $f = 7$; *contextual factors*, $f = 5$). In the process of 'approval', participants recognised new information as useful in making sense of a learning/teaching issue, developed an agreement on the usefulness of new information. In this stage, they engaged with the idea of formative assessment and developed an agreement on the usefulness of classroom-based assessment (*prior language learning experiences*, $f = 5$; *courses in teacher education*, $f = 10$; *contextual factors*, $f = 6$). Finally, the stage of 'integration' refers to change where participants moved to internalization. They either implemented new information purposefully or expressed competence and confidence in using new information. They attained a changed and developed perspective of the concept and displayed a desire to use it for the benefit of the students and for a better teaching. Accordingly, some participants could purposefully integrate formative assessment into their lesson-planning and implement it either successfully or unsuccessfully (*prior language learning experiences*, $f = 1$; *courses in teacher education*, $f = 2$; *contextual factors*, $f = 1$). In this process of 'integration' ($f = 4$), those participants revealed a changed and developed perspective of formative assessment concept, and they developed a desire to use it for the benefit of the students and for a better teaching.

The results indicate that the participant pre-service language teachers mostly experienced the processes of 'dissonance' ($f = 29$) and 'exploration of teaching-related beliefs' ($f = 32$). This might be because of that the concept of formative assessment was relatively a new type of assessment for them as their experiences in the past and in teacher education were generally based on traditional high-stakes examination system (see the section for 'prior language learning experiences' and 'teacher education'). In the construction process, they had to make a lot of comparisons among what they know, believe, feel, experience, observe, and do. These contradictions and inconsistencies led to cognitive and emotional dissonances, which also made the way for the exploration of teaching-related beliefs. In this way, they gained awareness and started to build on their formative assessment teacher cognition. Through 'self-examination' ($f = 21$) and 're-examination of alternatives' ($f = 17$), participants increased their understanding and managed to develop a critical eye on their own instructional practices and alternative instructional practices by focusing on the key strategies of formative assessment (William & Thompson, 2008; see Figure 3). By further getting engaged with the concept of formative assessment in the process of 'approval' ($f = 21$), some participants came to an agreement on the usefulness of formative assessment and conducted some deliberate planning for teacher-based assessment. With the process of 'integration' ($f = 4$), three participants could attain a changed perspective of formative assessment concept. These participants expressed desire to integrate formative assessment into their teaching practices, they implemented formative classroom practices either planned or unplanned, and they critiqued these implementations based on the framework for key strategies in formative assessment (see the analysis sections for TT2, TT1, and TT8).

These findings will be discussed in accordance with the relevant literature in order to reach a compact model of pre-service language teachers' formative assessment teacher cognition in the upcoming chapter. In the next chapter, the discussion and conclusion parts will be introduced with a focus on research questions. After that, some pedagogical implications for L2 teacher education will be provided. Recommendations for further studies will be made, and the chapter will be finalized with concluding remarks.

Chapter 5

Conclusion, Discussion and Suggestions

In this chapter, firstly, a summary of the study will be provided with the main aim of exploring student teachers' construction of formative assessment teacher cognition with a sociocultural perspective. Then, the findings of the study will be explained pursuant to research questions and will be discussed in the light of the relevant literature. Following this, conclusion, pedagogical implications for language teacher education and teacher learning, and suggestions for further studies will be presented.

Summary of The Study

The main aim of the present study was to explore student teachers' construction of formative assessment teacher cognition with a sociocultural perspective in language teacher education context. Within the framework of a Vygotskian sociocultural theory, the current study had three focal points to investigate: **(a)** the factors influencing the construction of pre-service language teachers' formative assessment cognition, **(b)** how the construction process of pre-service language teachers' cognitions about formative assessment progresses, and **(c)** how sociocultural resources mediate the construction process of formative assessment teacher cognition. These main points were investigated in accordance with the mediational means and cognitive/emotional dissonances that pre-service language teachers experienced in the construction of formative assessment teacher cognition. Based on these main objectives, the study answered the following research questions:

1. What are the factors influencing the construction of pre-service language teachers' formative assessment cognition?
2. How does the construction of formative assessment teacher cognition progress?
3. How do sociocultural resources mediate the construction process of formative assessment teacher cognition?

Relevant conceptualizations and studies were discussed and presented in the chapter for literature review under the main titles of **(a)** language teacher cognition, **(b)** the factors that shape language teacher cognition, **(c)** relationship between language teacher cognition and classroom practices, **(d)** pre-service language teacher cognition, **(e)** sociocultural turn of teacher cognition, and **(f)** formative assessment. While presenting the main constructs of the study in the literature review part, the relationship among these constructs was explained within the framework of the main objectives in the present study. Throughout the study, the phenomenon of formative assessment teacher cognition was scrutinized through the lens of Vygotskian sociocultural theory as illustrated in Figure 6 below.

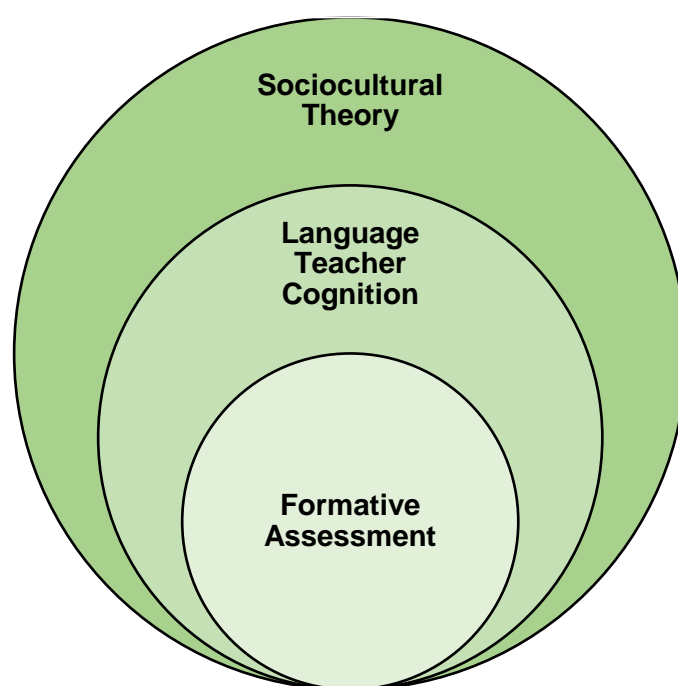


Figure 6. Theoretical framework and the placement of the concepts in the present study.

Based on the main objectives and the research questions, the present study was designed as a qualitative case study. One of the rationales behind choosing case study design as a research method in the present study was based on the justification made by Li and Walsh (2011) who described case study as the best method to investigate teacher beliefs, pedagogical practices, and contextual conditions together to develop an in-depth understanding of teacher cognition. Accordingly, the case was determined as the construction of formative assessment

teacher cognition in L2 teacher education context, which was investigated with a sociocultural perspective. In line with the categories determined by Yin (2003), the present study adopted the types of descriptive and holistic single-case study as the research design. Regarding the multiple perspectives provided by the participant pre-service language teachers, a single case study design was utilized by using holistic evidence. The case was scrutinized in line with the context, pre-service language teacher education which included classroom observation, practice settings and reflective practices. These settings were important in terms of the internalization and execution of formative assessment because it would have been difficult for the researcher to explore the complex construct of pre-service language teacher cognition without considering the context within which it occurred. In this direction, the researcher tried to establish the boundaries of the case with a concise definition of language teacher cognition, which is an “understanding, with reference to the personal, professional, sociocultural and historical dimensions of teachers’ lives, how becoming, being, and developing as a teacher is shaped by (and in turn shapes) what teachers (individually and collectively) think and feel about all aspects of their work” (Borg, 2019, p. 4); and formative assessment which is a “part of everyday practice by students, teachers and peers that seeks, reflects upon and responds to information from dialogue, demonstration and observation in ways that enhance ongoing learning” (Klenowski, 2009, p. 264).

Moreover, it was also aimed to meet the requirements of a longitudinal research design. For which, a prolonged engagement with the participants was accomplished, the data was collected at different time periods with multiple data collection tools (see Figure 2), the participants were selected from the same population, and comparisons across the datasets and between periods were involved in the analysis process (see Figure 4). These processes in a longitudinal research design served the aim of tracking the construction process of formative assessment teacher cognition and describing the process of learning-to-teach.

A total of 8 pre-service EFL teachers enrolled in a four-year language teacher education programme at a state university constituted the participants of the present case study. As suggested by Yin (2003) for triangulation and validity purposes, data was collected through multiple sources including reflective journals, documents (lesson plans), semi-structured interviews, classroom observation (field notes), pre-

observation and post-observation conferences. These datasets were obtained in six main stages (see Figure 2). Before starting Stage II, a brief intervention was conducted, and the participants joined a three-hour formative assessment session. The main aim of this informative session was to provide background knowledge about formative assessment as it was the focal point of investigating language teacher cognition. With a brief introduction about formative assessment, it was aimed to concentrate on classroom-based assessment as an alternative assessment practice. During the intervention, the main focus was on the issues of the difference between summative assessment and formative assessment, up-to-date definitions of formative assessment, the five key strategies of formative assessment, activities for formative assessment, and why it is important. The aim was to prepare the participants for the necessary knowledge and terminology for the next reflective practices in the upcoming phases of the study.

In the present study, sociocultural theory (Vygotsky, 1978, 1981) was adopted as the main theoretical framework through which pre-service language teacher cognition and teacher learning was examined. In accordance with the analytical framework provided by sociocultural theory, genetic method was utilised to guide the analyses in the present study. Genetic method emphasizes on the significance of studying the history of behaviour so as to reach an explanation rather than focusing merely on the description (Vygotsky, 1978). Genetic analysis captures “a single, unified framework for analysis” (Cross, 2010, p. 439) by providing both explanatory and descriptive account of the investigated phenomena. The analytical frameworks framed by genetic analysis guided the present study to find out the mediational means and the major shifts in formative assessment teacher cognition. Therefore, the interpretation of the data was contextualized according to the construction process of language teacher cognition about formative assessment (micro-genetic), participants’ personal history and past experiences related to language teaching/learning and assessment/formative assessment (cultural-history and ontogenesis), and the mediational sources emerged throughout these processes (Vygotsky & Luria, 1994).

By combining reflective journals, interviews, classroom observations, field notes, pre- and post-observation conferences, and documents, a comprehensive dataset was generated for each participant pre-service language teacher. A

grounded content analysis (Bogdan & Biklen, 1998; Glaser & Strauss, 1967) was conducted to analyse the data with a primary focus on the meanings that individuals give to their verbal expressions (Spradley, 1979; Spradley & McCurdy, 1972). The constant comparative method was also carried out in order to develop an understanding of the data with “a simultaneous comparison of all social incidents observed” (Goetz & LeCompte, 1981, p. 58). Sociocultural discourse analysis (SCDA) was another important data analysis method in the present study. As different from the traditional discourse analysis, the present study adopted a sociocultural perspective while analysing reflective practices that took place in pre- and post-observation conferences.

In the chapter for findings, each analysis unit was reported based on the framework provided by the research questions: the factors influencing the construction of formative assessment cognition, the construction process of this cognition, and the mediational means in this process. Labelling the instances of formative assessment teacher cognition was conducted around the sociocultural factors like participants’ *perezhivanie* (lived experiences) and *obuchenie* (teaching/learning). Throughout the data collection and data analysis processes, participants’ understanding and implementation of formative assessment completely and correctly was not expected; however, what was informative for the researcher was whether the participants could detect or express a possible connection between their beliefs, knowledge, feelings, experiences, instructional practices and formative assessment. Therefore, as illustrated in the previous chapter, implementation of formative assessment did not necessarily require a participant trainee teacher to complete all key strategies in the framework formed by William and Thompson (2008, p. 63). Main findings in relation to research questions and the relevant literature are explained and discussed as in the following.

RQ 1: What are the factors influencing the construction of pre-service language teachers' formative assessment cognition? As a result of increased popularity of teacher cognition research, studies in the field of mainstream education have focused on the influences of different factors on teachers' beliefs, thought processes, and knowledge. In his review study on language teacher cognition, Borg (2003b) concluded that teacher cognition is shaped by various interacting and conflicting factors. Relevant literature includes example studies indicating the importance of investigating teacher cognition and teacher learning together, and the present study attunes with this research paradigm as its focus is on both teacher cognition and teacher learning. These studies reported on the influential factors during the construction of pre-service teacher cognition, and they illustrated past learning experiences, previous coursework, educational background, teacher education programmes, and sociocultural contexts among these factors (Borg, 2015; Johnson, 2009, 2018; Kubanyiova, 2012, 2015; Li, 2017, 2020). Such kind of research in language teacher education is used as a source for both pre-service teacher education and ongoing professional teacher development (Johnson, 2009). At the intersection of teacher cognition, teacher learning, and teacher education, researchers may provide pre-service and in-service teachers an opportunity to see evidence for their understanding and knowledge (Kubanyiova, 2015).

Accordingly, in order to contribute to teacher learning and teacher education in Turkish EFL context, one of the main aims of the present study was to find out the factors influencing the construction of pre-service language teachers' formative assessment cognition. The analysis resulted in three major factors as the main sources of pre-service language teachers' formative assessment cognition: prior language learning experiences, teacher education, and contextual factors. These factors were ramified into more specific factors shaping language teacher cognition as illustrated in Figure 7 below.

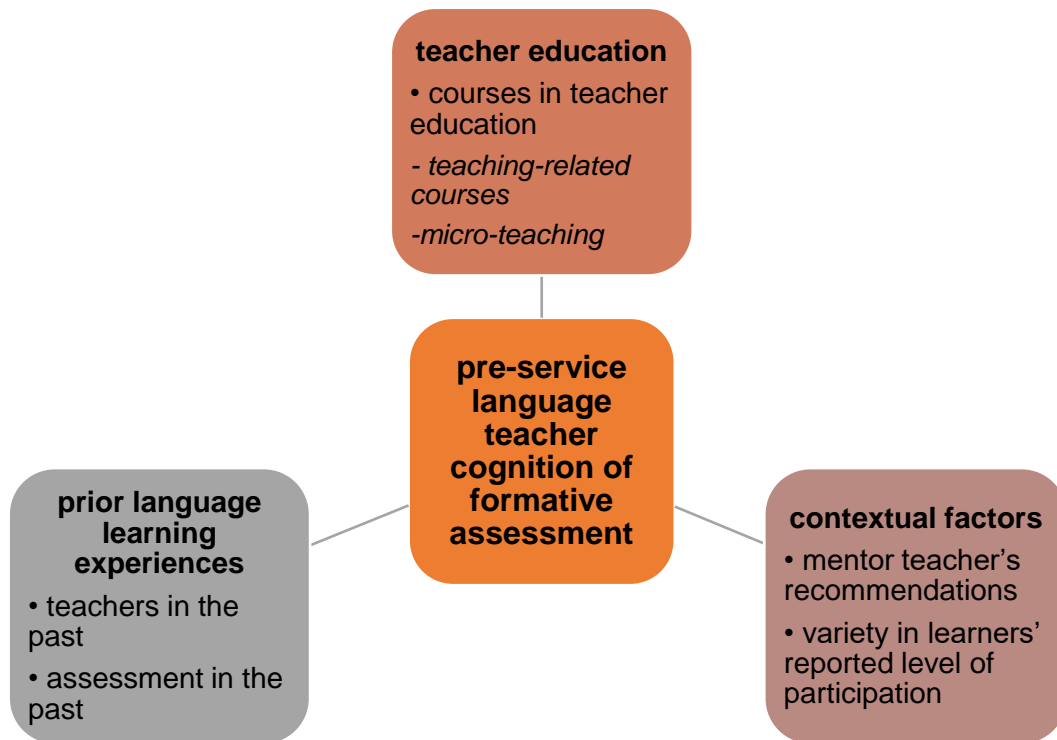


Figure 7. Main sources of pre-service language teachers' formative assessment cognition in the present study.

The illustration above symbolizes the formation of formative assessment teacher cognition in the present study. Accordingly, quantitative part of the content analysis in the present study indicate that 'courses in teacher education / teacher education' ($n = 60$) is the most influential factor in the construction process of formative assessment teacher cognition. It is followed by the factors of 'prior language learning experiences' ($n = 47$) and 'contextual factors' ($n = 37$) as driven from the datasets of all participants. The investigation was carried forward with the quantification of sub-themes in the data analysis process. The results demonstrated that 'teaching-related courses' ($n = 41$) is the most influential factor in the construction process of teacher cognition, which is followed by the participants' previous encounters with the assessment, 'assessment in the past' ($n = 26$). The impact of the other factors is as follows: 'teachers in the past' ($n = 21$), 'variety in learners' reported level of participation' ($n = 21$), 'micro-teaching' ($n = 19$), and 'mentor teacher's recommendations' ($n = 16$).

Urged by the absence of a uniformity in researching language teacher cognition, Borg (2006, 2015) composed a framework illustrating the development of teacher cognition and the complex relationship between teacher cognition,

classroom practices, and teacher learning. In this unifying model, Borg (ibid.) presented the factors that shape the act of teaching and explained the relationship between teacher cognition and these significant factors like schooling experience, professional development, classroom teaching, and specific contexts. In this sense, the present study supports and contributes to the results provided by Borg (ibid.) by both focusing on a specific aspect of teacher cognition – formative assessment, and by revealing three major factors shaping the constitution of this cognition: prior language learning experiences, teacher education, and contextual factors (see Figure 7). Furthermore, noteworthy and recent studies investigating the concept of teacher cognition revealed the factors influencing teacher cognition such as contexts (Lee, 2008), previous learning experiences (Reichelt, 2009; Worden, 2015), and teacher education programmes (Gebhard, Chen, Graham, & Gunawan, 2013; He & Prater, 2014; Lee, 2013; Xiao, 2014). At the intersection of teacher cognition and assessment in language classes, Yin (2005) and Rea-Dickins (2007) investigated teachers' assessment practices and their decision-making during these practices. They reported on the sources of these cognitive activities by illustrating teacher education, professional context, and previous teaching experience as the influential factors on teachers' beliefs and decision-making. Likewise, Crusan, Plakans, and Gebril (2016) listed prior language learning experiences and teacher learning among the factors which have an impact on teachers' philosophies regarding assessment. Moreover, Xu and Liu (2009) argued that teachers' assessment practices and plans are affected by their prior assessment experience, and the institutional context is influential on teachers' assessment decision-making. In supporting the ever-developing literature of language teacher cognition and formative assessment, the present study reported findings congruent with these results.

As one of the main sources in the present study, 'prior language learning experiences' is one of the factors shaping teacher cognition. This theme was inspected through the examples from various datasets including TT1, TT4, TT5, and TT2 as participants. The second important factor effective in the formation of teacher cognition was scrutinized under the theme of 'teacher education', which was explained through the datasets of TT1, TT8, and TT2. Lastly, the theme of 'contextual factors' was examined with the samples from TT7, TT5, and TT8's

datasets. It should also be noted that these analyses did not focus on the main sources barely but examined the constructs through the participants' cognitive/emotional dissonances within the framework of learning-to-teach process.

Prior language learning experiences. Previous studies indicate that language teachers have prior language learning experiences originated from their language aptitude as learners, teachers in the past, school performances, etc. These experiences help to determine certain beliefs related to language teaching and learning by establishing the foundations of language teacher cognition. In line with the results of the present study, prominent studies in the relevant literature of language teacher cognition indicate that language teachers' past learning experiences affect their beliefs about language teaching and learning (Borg, 2006, 2015; Johnson, 1994, 2009, 2015; Li, 2017, 2020; Mok, 1994; Reichelt, 2009; Worden, 2015). According to Borg (2003), teachers' past experiences of language learning is a significant factor shaping cognition about language learning, and this leads to the initial conceptualization of language teaching during teacher education by having a continuous influence on their professional lives. In the relevant literature, the concept of past learning experiences is often referred as 'apprenticeship of observation' (Lortie, 1975) which influenced the field of language teaching remarkably (Öztürk, 2015). Borg (2004) defined this term as "the phenomenon whereby student teachers arrive for their training courses having spent thousands of hours as school children observing and evaluating professionals in action" (p. 274). It is also described as 'the anti-apprenticeship of observation' by Borg (2019) as "the way in which prior experience as a language learner gives prospective teachers a model of the kind of teacher they do not want to be" (p. 17).

To give specific examples from the findings of the present study, the effects of past learning experiences will be explained with the examples from TT1's dataset in the next paragraph.

Accordingly, TT1 is one of the participants who revealed the effects of past language learning experiences on her beliefs and instructional practices. She reflected on her past memories and stated that she developed negative feelings towards speaking in English in class because of the error correction style conducted by one of the English teachers in primary school although she initially had positive feelings for learning a new language (TT1, Stage I, Interview 4). Based on these

negative past language learning experiences, TT1 articulated the effects of past experiences on her instructional practices. For example, despite excessive error correction and feedback opportunities occurred during her teaching practice, she avoided using these opportunities because she did not want to offend or discourage students with strict error correction as her teacher did in the past (TT1, Stage II, Reflective Journal 11, Post-OC 2, Extract 1 & Extract 2). However, she also managed to make a connection to the aspects of formative assessment by referring to these missed learning opportunities. TT1 remarked on her awareness with excessive student errors in pronunciation and grammar and her not acting on it, and she critically focused on alternative instructional practices for error correction and teacher feedback (TT1, Stage II, Reflective Journal 11, Post-OC 2, Extract 1 & Extract 2). By using constant comparative method in analysing TT1's dataset, the researcher could detect 'prior language learning experiences' as an important influential factor in shaping TT1's formative assessment teacher cognition. Her initial beliefs, knowledge, feelings, and practices regarding some specific aspects of formative assessment (e.g. KS3) were shaped around the factor of 'prior language learning experiences'. It might be concluded that TT1's *perezhivanie* (lived experiences, Vygotsky, 1987) shaped her initial cognitions related to formative assessment. Reflective practices, co-established IDZ, and responsive mediation were also effective in revealing 'prior language learning experiences' as one of the main sources of language teacher cognition in TT1's dataset.

By exploring the factors influencing the construction of language teacher cognition of formative assessment in a teacher education context, the present study aimed to present important implications for teacher education programmes and contribute to the research on learning-to-teach process. This focus of research is also encouraged by prominent studies which agree on the importance of professional preparation in shaping student teachers' cognitions, and they warn against the programmes that ignore trainees' prior experiences and beliefs as these programmes might be less effective at influencing the development of teacher cognition (Borg, 2006, 2015; Johnson, 2009, 2015; Li, 2017, 2020). Within the same research context (Turkish EFL context) as the present study, Gülden (2013) conducted a study to examine the factors influencing pre-service teachers' instructional decisions during the practicum by utilizing both qualitative and

quantitative methods through questionnaires, classroom observations, interviews, and autobiographical reports. The author found out that the components of the teacher education programme and student teachers' past language learning experiences were among the factors having impact on the instructional decisions during teaching practices. The study suggested that what pre-service teachers bring to the teacher education as their language learning and teaching beliefs should be integrated into the design of teacher education programmes.

Likewise, Farrell (2006) tried to make pre-service teachers' existing beliefs explicit by using metaphor analysis throughout the practicum experience in Singapore EFL context. The study presented metaphors related to language teachers, language classrooms, and language teaching, and some of these metaphors were originated from student teachers' schooling experiences. These experiences form pre-service teachers' initial conceptualizations of language teaching, which may shape their future practices. In line with these results, Farrell (*ibid.*) suggested that pre-service language teachers must be provided with opportunities in teacher education to reveal their prior beliefs and feelings about learning and teaching. Similarly, Da Silva (2005) worked with three student teachers in a teacher education programme to portray the basis of pre-service language teachers' perceptions about teaching language skills. The results indicated that experiential knowledge based on previous schooling experiences are effective in forming pre-service language teachers' perceptions about teaching. Da Silva (*ibid.*) also articulated that the practicum process was challenging for the participants as their experiential knowledge shaped by their past language learning experiences was not integrated into their developmental process. Therefore, the author brought forward the suggestion that teacher education programmes need to identify and integrate pre-service teachers' preconceived beliefs about language teaching and learning.

In supporting the findings of the present study, Farrell (2008) highlighted the importance of previous schooling through which student teachers observe their teachers and develop images regarding teaching and learning, and this shapes their initial teacher cognition. Farrell (*ibid.*) also addressed to the complex process of learning-to-teach which is influenced by certain elements like past learning experience. Likewise, Urmston's (2003) study reported on some factors that shape

teacher beliefs and knowledge and examines teachers' own experiences as learners and their practicum process as effective sources developing teacher cognition. A similar supporting result can be viewed in the study conducted by Hayes (2008) who had a different aim as investigating the motivating factors behind choosing teaching profession. This study again revealed teachers' schooling experiences and their language teachers in the past as the main reasons behind choosing language teaching as a profession. Furthermore, Hayes (ibid.) highlighted on the importance of conducting studies on the influence of previous schooling experiences as it may contribute to the knowledge base of teacher education and professional development.

Assessment practices that participant pre-service teachers experienced in their past learning constitutes another major factor influential in the construction of formative assessment teacher cognition in the present study. This finding is also supported by the related literature which demonstrates the effects of past learning experiences of assessment practices on language teachers' beliefs (e.g. Craig et al., 2013). In terms of teachers' experiences with assessment in the past, Vogt and Tzagari (2014) also reported that teachers test the same way they were tested in the past. According to Hatipoğlu (2016), "language teachers' experiences as testees shape their beliefs about assessment, inform their teaching and play a central role in how they plan and implement classroom assessment practices" (p. 136). This statement by Hatipoğlu (ibid.) indicates the importance of teachers' past assessment experiences on shaping their beliefs and practices.

Teacher education. Teacher education is another influential factor found in the present study. In accordance with the studies which report on the contribution of teacher education on pre-service and in-service teachers' cognition development, the current study, as well, classifies teacher education among the factors influencing the construction of language teacher cognition. Besides, the factor of 'teacher education' was found to be the most effective element ($n = 60$) shaping formative assessment teacher cognition in the present study (see Table 26). According to Johnson (2015), teacher education process is crucial in guiding teachers to overcome their everyday notions about teaching and student learning. Li (2020) also signified the important roles of micro-teachings and the practicum as they provide opportunities for reflection by connecting theory and practice in the process of

learning-to-teach. In the same vein, this experiential linking of theory and practice by means of teacher education has an important role in shaping pre-service teachers' beliefs, knowledge, and feelings regarding language teaching (Borg, 2015; Borg, Birello, Civera & Zanatta, 2014; Gebhard, Chen, Graham, & Gunawan, 2013; He & Prater, 2014; Lee, 2013; Xiao, 2014). For Li (2020), teacher education is a process of developing and changing beliefs and knowledge about language learning and teaching, and it is a process of constructing teacher identity. By utilizing an ongoing learning-to-teach process, teacher education may turn into a bridge bringing theory and practice together (Alagözlü, 2017).

By specifically focusing on courses in teacher education, the present study analysed the ways participant pre-service teachers re-imagined and reconstructed their cognition regarding formative assessment although each of them had particular reasons to develop and make the change. For example, TT8 is one of the participant pre-service language teachers whose construction process of formative assessment teacher cognition was influenced by the factor of 'courses in teacher education'. In the trajectory of TT8's construction of teacher cognition, the effects of teaching-related courses were observable. TT8 signified the importance of teaching-related courses as the most effective components of her teacher education: "Although most of them contain only theoretical knowledge, I think that we acquired the most beneficial and important knowledge related to English teaching from courses like methodology and teaching skills" (TT8, Stage I, Interview 1). TT8 especially addressed to the place of interaction and group work on which they paid a particular attention in a course about approaches to language teaching (TT8, Stage I, Interview 1). Urged by the knowledge she attained from the teaching-related courses, TT8 designed a lesson around communicative purposes by attaching it to some key strategies of formative assessment (e.g. KS4 & KS5). Through responsive mediation, TT8's cognition related to communicative language teaching and formative assessment was provoked when TE and TT8 were attempting to accomplish a joint understanding for TT8's upcoming teaching practice (TT8, Stage II, Pre-OC 1, Extract 6). Although TT8 tried to put her beliefs and knowledge into practice, there occurred an inconsistency between what TT8 planned and what she did. Although she still adhered to her awareness of formative assessment, she also notified the difficulty of enacting formative assessment

practices (TT8, Stage II, Reflective Journal 11). However, it should also be noted that TT8's experiencing a cognitive/emotional dissonance between her plan and actual practice might play as a potential growth point for TT8's development of formative assessment cognition.

In line with the results of the present study, Mattheoudakis (2007) carried out a longitudinal study about changes in student teachers' beliefs throughout a three-year teacher education programme by collecting data through a scale and self-reflection questionnaires. The results of his study indicated significant and gradual changes in student teachers' beliefs regarding language teaching and learning though some beliefs remained stable throughout teacher education process. Opposite to the results of the present study, Kunt and Özdemir (2010) conducted a study with a quantitative design and reported no significant improvement in pre-service teachers' beliefs about language teaching and learning after taking methodology courses. The reason of this might be the limited framework of a quantitative design in explaining the profoundness of changes and developments in teacher beliefs. By taking this limitation into consideration, the present study tried to investigate teacher cognition with multiple data sources and with a broader perspective regarding knowledge, feelings, attitudes, and practices in addition to beliefs. Tracking the changes within its own context helped us to display authentic and context-specific results in a case study design like the present one. With a similar perspective, Li (2012) investigated the trajectory of two student teachers' development and construction of teacher cognition by examining the influence of teacher education on this process, and she concluded that teacher education has significant effects on pre-service teachers' beliefs related to teaching, learning, and teacher-learner relationship. Likewise, Özmen's (2012) paper explored student teachers' beliefs about language learning and teaching throughout a teacher education programme in a longitudinal research design. The study took the programme as a dynamic variable to track possible changes in student teachers' beliefs with an attempt to evaluate the impact of the programme. The author made use of interviews with 49 student teachers for four years to investigate the development of pre-service teachers during their teacher education, and he compared the initial years of the programme with the following years in terms of the opportunities they provide for the professional development. While the theoretical

courses in the initial years had limited impact on student teachers' language teaching beliefs, it was observed that teaching methodology courses and practicum had significant roles in the embodiment of their language teaching practices. Özmen (ibid.) concluded that trainee teachers' beliefs about language teaching and learning developed with the impact of their engagement in the teaching practicum.

Contextual factors. Apart from prior language learning experiences and teacher education, some contextual factors were also influential in the construction of formative assessment teacher cognition in the present study. 'Mentor teacher's recommendations' and 'variety in learners' reported level of participation' are among these factors shaping teacher cognition. According to Borg (2006, 2015), contextual factors have a substantial place in mediating teachers' instructional practices congruent with their cognitions. Likewise, Li (2017) suggested investigating teacher learning and contextual factors together to explore the complexity of teacher cognition. For her, it is important to understand the inconsistencies between teacher cognition and practices by investigating the influence of contextual factors on this process. As these contexts can be very broad or at a very specific classroom level, it is important to understand both macro and micro contexts in order to conceptualize the complexity of language teacher cognition (Birello, 2012; Lee, 2008). As one of the main sources of language teacher cognition in the present study, 'variety in learners' reported level of participation' revealed itself as a paradigm belonging to micro context in various datasets. The analyses revealed that participant student teachers specified student behaviours like 'being passive throughout the lesson', 'unwillingness to participate or no sign of participation', 'slower rate of learning performance', 'not raising hands', 'difficulty in understanding English medium teacher talk', etc. when they referred to the variety in learners' level of participation.

For example, TT5 is one of the participants whose teacher cognition was shaped by this classroom-specific contextual factor, 'variety in learners' reported level of participation'. His awareness of this micro contextual factor came into being through his cognitive/emotional dissonances emerged in his classroom observations and in his reflections on some classroom parameters: "The students sitting next to the wall didn't raise their hands. They were listening, but they didn't participate in the lesson. I think they didn't understand anything because their English level is really bad" (TT5, Stage I, Reflective Journal 6). TT5 criticized this

situation by referring to what he learnt through courses in teacher education: “I have learned that we need to address all of the learners, good or bad in a class” (TT5, Stage I, Reflective Journal 6). With a similar concern with the variety in learners’ participation, in a post-observation conference, TT5 mentioned the passive students during his teaching practice (TT5, Stage IV, Post-OC 4), and he indicated the low language proficiency as the reason of learners’ not participating in the lesson. What TT5 believed and what he did in relation to the variety in learners’ participation level led to a cognitive/emotional dissonance which may pave the way for a potential growth point. Through responsive mediation in a co-built IDZ, TT5 went through a growth point in which he experienced an increased awareness regarding his beliefs, knowledge, and behaviours in terms of the factor of ‘variety in learners’ reported level of participation’. This increased awareness facilitated TT5’s internalization of creating learning opportunities for every student in the classroom, and he built a link between his experiences and formative assessment in the remaining dataset of the relevant stage. “I realized that there were students who didn’t understand anything about the lesson because their English is bad. But, I didn’t want to interrupt the flow of the lesson, and continued with the ones who participated in the lesson” (TT5, Stage IV, Interview 8). Despite his recognition of a problem with student participation caused by low language proficiency, he continued the lesson with the participating students in order to complete the teaching practice on time. Based on these experiences and reflection, he further built on his cognition regarding formative assessment around the factor of ‘variety in learners’ reported level of participation’. “I could try to explain in a simpler way. In this way, they would be more active during the task. ... so, KS1 was not there for everybody” (KS1: Clarifying learning intentions and criteria for success, TT5, Stage IV, Reflective Journal 13). Although TT5 did not act upon the evidence he attained through observation, his reflections on the alternative instructional practices and formative assessment may be a sign for that his language teacher cognition of formative assessment is open to development.

By looking at the effects of contextual factors on teacher cognition, it might be claimed that the present study supports the relevant studies by providing results consistent with the literature. According to Tudor (2001), teachers’ actions develop in relation to their beliefs and perceptions of the relevant teaching situation. This relevant teaching situation is shaped by macro and micro contextual factors (Lee,

2008, 2014; Li, 2013). For Richards and Farrell (2005), change in teacher cognition is triggered by both personal factors and the contextual factors emerging in teachers' professional environment. In a review work, Buehl and Beck (2015) identified the contextual factors promoting or preventing teachers' implementing their beliefs by reviewing the studies conducted between 2008 and 2012. The authors distinguished these factors as internal (knowledge, experience, teacher's levels of self-reflection and awareness) and external (classroom context factors, school context factors, national-state, and district level factors). Accordingly, it wouldn't be wrong to claim that 'mentor teacher's recommendations' and 'variety in learners' reported level of participation' are among the factors existing in pre-service language teachers' immediate professional community. With a similar perspective, Kang and Cheng (2014) tracked a novice EFL teacher's cognition development in learning-to-teach process in an in-depth case study. By benefitting from various data collection tools like interviews and classroom observations, the researchers reported a substantial amount of change and development in the participant teacher's cognition and instructional practices. In addition to paying tribute to the effects of increasing teaching experience and reflective practices, the authors also attributed the reason of this change to contextual factors like school culture, colleagues, and parents: "the teaching context decides which idea can be put into practice and stay in the classroom" (p. 180). In supporting the results of the present study, in a mixed methods research design, Nishino (2012) examined language teachers' beliefs and practices and their relationship with contextual factors in Japanese context. The analyses indicated that teachers' classroom practices were considerably influenced by testing policies and students' exam related expectations in Japan. As expressed by participant teachers, they did not use target language while teaching and taught mostly grammar and reading comprehension although they were trained to implement communicative language teaching methods in classroom practices. Nishino's study repeated the findings of similar studies (e.g. Gorsuch, 2000; Schulz, 2001) by signifying the influence of educational policies and students' expectations on teachers' instructional practices and concluded that the type and content of high-stakes examinations in Japanese context should be re-examined.

Abovementioned studies exhibit the examples of contextual factors and their significant impact on teacher cognition and classroom practices. However, by looking at the scope of the works, it can be claimed that studies on the impact of contextual factors generally focus on in-service teacher cognition and practices. Therefore, there is a need for further research to understand what contextual factors encircle pre-service teacher education and the role of these contextual factors in formation of pre-service language teacher cognition and pre-service teaching practice.

Moreover, the common point of the above-mentioned studies is their approach to teacher cognition with a general perspective regarding language teaching and learning. When compared with these general focal points, the present study attained a more specific approach to investigating teacher cognition within the framework of formative assessment. Therefore, it is believed to contribute to the relevant literature more by bringing an under-investigated side of teacher cognition: formative assessment. Furthermore, by attaining Vygotskian sociocultural theory as the theoretical framework, this study aimed to respond to the recent social turn of research on language teacher cognition (e.g. Burns, Freeman, & Edwards, 2015; Feryok, 2012; Golombek and Doran, 2014; Johnson, 2009, 2015; Johnson & Golombek, 2011, 2016; Kubanyiova & Feryok, 2015; Li, 2017, 2020; Ngo, 2018; Zheng, 2015).

RQ 2: How does the construction of formative assessment teacher cognition progress?. In the current study, the construction process of formative assessment cognition was explained with six main steps: *dissonance*, *exploration of teaching-related beliefs*, *self-examination*, *re-examination of alternatives*, *approval*, and *integration*. As previously explained in the chapter for findings, this construction process was not linear, and it was shaped by the main factors forming participants' teacher cognition of formative assessment. It must be again notified that not every participant followed the same steps in the same order nor do all participants experienced all of these processes in the same amounts as it is exemplified in Table 11, 14, 18, 19, 23, 25, and 27.

According to the results, 'dissonance' ($f = 29$) and 'exploration of teaching-related beliefs' ($f = 32$) are the most experienced processes in the construction process of language teacher cognition. In the process of 'dissonance', participants

perceived an inconsistency between their existing beliefs and newly presented information; vision and the reality; beliefs and practices; beliefs and observations. They experienced a disorienting dilemma and confusion. During the process of 'exploration of teaching-related beliefs', participants realised or became more aware of a construct, idea or process by making connections between beliefs, observations, practices, and experiences. A likely explanation for this result might be that participants' experiences with assessment are generally based on traditional high-stakes examination system, and formative assessment was an alternative assessment practice they recently met through courses in teacher education. Besides, according to research conducted in Turkish EFL context by Hatipoğlu (2015a, 2015b, 2017), pre-service teachers have more problems with the formative side of assessment than with formal assessment practices. Moreover, their teacher identity and professionalism were still under construction as the participants were still pre-service teachers. In the construction process of language teacher cognition, they had to make a lot of comparisons among what they know, believe, feel, experience, observe, and do. These contradictions and inconsistencies led to cognitive and emotional dissonances, which also made the way for the exploration of teaching-related beliefs. Therefore, these high frequencies of dissonances and exploration of teaching-related beliefs were expectable in the construction process of formative assessment cognition. Figure 8 below illustrates the construction process of pre-service language teachers' cognitions regarding formative assessment in the present study.

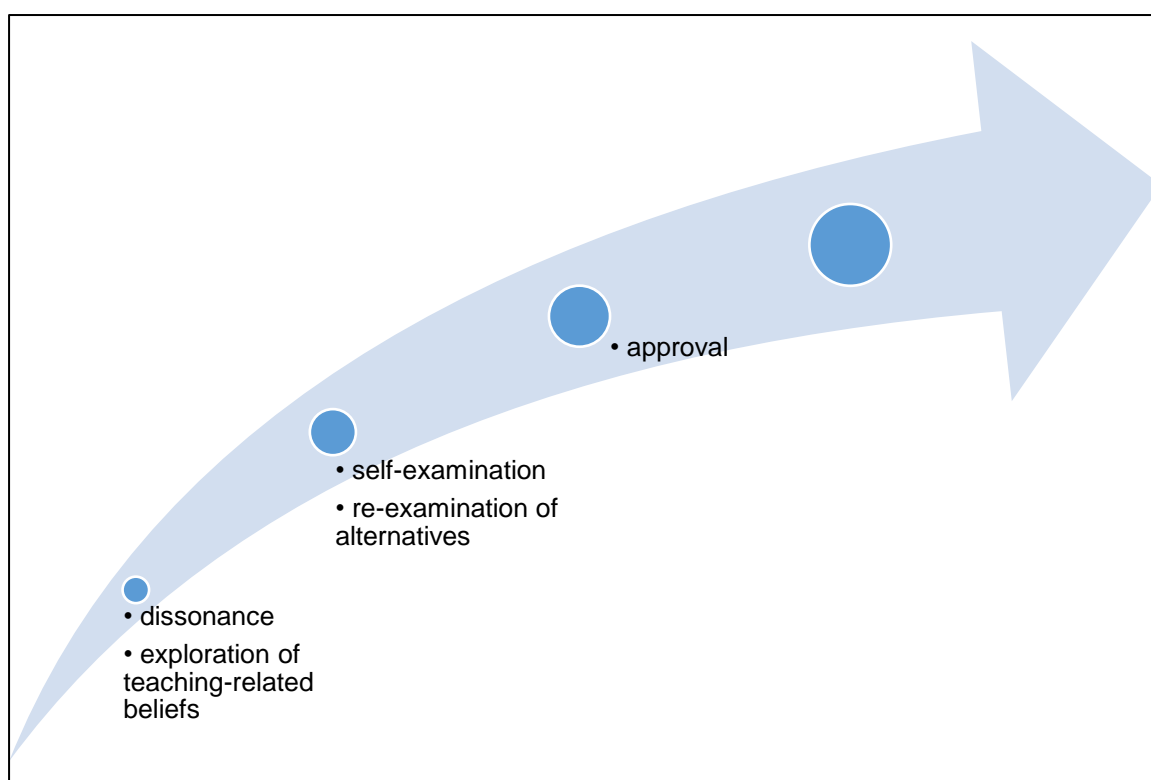


Figure 8. The construction process of pre-service language teachers' formative assessment cognition in the present study.

Through 'self-examination' ($f = 21$) and 're-examination of alternatives' ($f = 17$), participant student teachers accomplished to develop a critical eye on their own and alternative instructional practices and formative classroom practices by focusing on the key strategies of formative assessment (William & Thompson, 2008; see Figure 3). Their awareness of their own instructional practices, beliefs, feelings, and knowledge increased, and they focused on the idea of successful teaching and student learning with the alternative instructional practices. By further getting engaged with the concept of formative assessment in the processes of 'approval' ($f = 21$), some participants came to an agreement on the usefulness of formative assessment and conducted deliberate planning for teacher-based assessment. These participants recognised new information as useful in making sense of a learning/teaching issue. With the process of 'integration' ($f = 4$), three participants could attain a changed perspective of formative assessment concept. These participants expressed desire to integrate formative assessment into their teaching practices, they implemented formative classroom practices either planned or unplanned, and they critically analysed these implementations based on the

framework for key strategies in formative assessment (see the analysis sections for TT2, TT1, and TT8). The process of 'integration' refers to change where participants moved to internalization. They either implemented new information purposefully or expressed competence and confidence in using new information, attained a changed and developed perspective of the concept and displayed a desire to use it for the benefit of the students and for a better teaching. When we look at the overall frequency distribution for the construction process, we see that 'integration' process is the least experienced stage of all ($f = 4$). This might be originated from the fact that participants are pre-service teachers whose professional identity and teacher cognition are still under construction as a part of their learning-to-teach process. Leung (2004) expressed the complexity and difficulty of teacher change in terms of attaining formative assessment skills as follows:

... from the research literature in teacher professional development and from working with teachers we know that teacher change is often a very complex, difficult, highly personal, and long-term process ... In relation to formative teacher assessment there is an added demand because the fleeting multifaceted face-to-face immediacy of classroom interaction requires a good deal of metalevel self-awareness, self-monitoring, and decision-making (Leung, 2004, p. 34).

As was mentioned in the previous chapters, the participant trainee teachers in the current research were introduced with the concept of formative assessment in a brief intervention session. The main aim of this informative session was to provide background knowledge about formative assessment as it was the focal point of investigating language teacher cognition. When considering participants' past language learning experiences (see the section of findings for 'prior language learning experiences'), the concept of formative assessment was a relatively new pedagogical idea for those trainee teachers.

As one of the aims of the present study was to explore the construction process of formative assessment cognition, the benefits of following the trajectory of this process could be explained with Li's (2020) statement on the development of language teacher cognition:

For pre-service teachers, to re-imagine or reconstruct their pedagogical knowledge is part of their cognition development. When student teachers gain new insights into teaching and learning, or realise new pedagogical ideas, they explore ways to re-imagine or reconstruct their pedagogy,

although every teacher has particular reasons to make the change (Li, 2020, p. 223).

As stated by Borg (2019), teacher cognition research does not only aspire to describe teacher knowledge and beliefs, but also seeks to understand “the influence of such unseen factors on what teachers do and how they develop” (p. 2). In the same way, the present research tried to shed light on an under-explored part of language teacher cognition by investigating formative assessment teacher cognition and its construction process. While examining this process, the researcher focused on the mediational space (Johnson & Golombek, 2011) in which the participants reorganized and restructured their cognitions. As was also remarked by Johnson and Golombek (2016), in this transformative process, experiences as language learners, teacher education process, and the contextual factors were the means shaping L2 teachers’ instructional practices, and specifically formative assessment cognition in the present study.

In the present study, the construction process was examined with a sociocultural lens to uncover the dialectical nature of the major shifts in formative assessment teacher cognition. With this, it was demonstrated that participants’ construction of formative assessment teacher cognition followed a complex and non-linear trajectory (see Table 27) similar to the results of the study conducted by Ngo (2018). In this prominent study, Ngo (*ibid.*) investigated the major shifts in a Vietnamese English language teacher’s cognition regarding second language writing and the resources that influenced the developments in language teacher cognition in a narrative design with a Vygotskian sociocultural framework. Similar to the results of the present study, Ngo (*ibid.*) detected teacher education programmes, language learning experiences, and context as influential factors on the construction of second language writing teacher cognition. Moreover, he concluded that the participant teacher’s cognition changes occurred in a complex and non-linear trajectory mediated by humans, concepts, and artifacts. With this study, Ngo (*ibid.*) depicted the socially mediated and dialectical nature of language teacher cognition in the context of second language writing.

In a similar study conducted on the changes in teacher cognition, Yuan and Lee (2014) examined the influence of teacher education on three pre-service language teachers’ cognitive change through their teacher identity construction. By

analysing different data sources like interviews, classroom observations, weekly journals, and stimulated recalls, they explored cognitive, social, and emotional processes of belief construction and reported an observable change in participants' beliefs regarding language teaching and their understanding of being a language teacher. By confirming the gradual and cumulative change in the beliefs, they identified certain processes of change (e.g. confirmation, realization, modification, disagreement, and integration), which shares common points with the process of construction in formative assessment teacher cognition in the present study. By emphasizing on the sociocultural factors triggering the change, they also concluded that prior beliefs of participants were transformed with new experiences in real classroom atmosphere, which contributed to their development as prospective teachers.

In pursuit of understanding language teacher cognition better, recent studies reported significant changes in pre-service teachers' cognition, which was affected by particular factors like past learning experiences, teacher education, practicum, and context (Cabaroğlu & Roberts, 2000; Kavanoz, Yüksel & Varol, 2017; Li, 2020; Sheridan, 2016; Tang, Lee & Chun, 2012; Yuan & Lee, 2014). However, according to Yüksel and Başaran (2019), the process of change in pre-service English teachers' cognition during teacher education is an under-explored side of teacher cognition research, and it is an issue also stated by some other recent studies (e.g. Borg, 2009, 2015; Debrelı, 2016; Gürsoy, 2013; Yuan & Lee, 2014). Based on this concern, Yüksel and Başaran (ibid.) investigated the cognition change of pre-service teachers during teaching practicum by examining their beliefs about language teaching and being a teacher in Turkish EFL context. In this study, they followed a systematic perspective by benefitting from a framework produced by Cabaroğlu and Roberts (2000) to evaluate and track the change in pre-service teachers' cognition during the practicum. Opposite to the process-oriented method used in the present dissertation study, Yüksel and Başaran (ibid.) conducted open-ended surveys ($n = 28$) only before and after the practicum process. However, Gülden (2013) critiqued on the use of questionnaires and intermittent data collection procedures in investigating change in student teachers' cognitions.

Although the present study focused on the construction process of language teacher cognition rather than defining the process as a change, it is believed that

there is a need for a longitudinal and process-oriented study design to capture the moments of major shifts in cognition. However, it must be noted that, in terms of the similarities with the present study, the respective studies (e.g. Cabaroglu & Roberts, 2000; Yüksel & Başaran, 2019; Yuan & Lee, 2014) were conducted with pre-service language teachers in the context of practicum as well. Additionally, there are some further common points between the construction process in the present study and the change categories in the studies mentioned above. Therefore, it is thought that comparing the results with these respective studies may contribute to the discussion of the present study. For example, Yüksel and Başaran (ibid.) adopted the framework by Cabaroglu and Roberts (2000) to track the changes in pre-service English teachers' beliefs, and they concluded that the practicum experience caused the change in beliefs through the change categories of awareness, elaboration, addition, re-ordering, and reversal (see Cabaroglu & Roberts, 2000, pp. 393-398). To clarify, there are eleven change categories described by Cabaroglu and Roberts (ibid.) in order to diagnose the belief change process. Some categories of the belief change process in their study coincide with the ones in the current study. For instance, Cabaroglu and Roberts (ibid.) described the category of 'consolidation/confirmation' as "a student teacher perceives a consistency between her/his existing beliefs and newly presented information, so that they become more established" (pp. 393-398). Likewise, the process of 'approval' in the present study was defined as 'TT recognises new information as useful in making sense of a learning/teaching issue, develops an agreement on the usefulness of new information' (see Table 6). In a similar way, they described 'awareness/realization' category as "the student teacher realises or becomes more fully aware of a construct, idea or process. As a result, s/he accepts and understands it better" (Cabaroglu & Roberts, ibid., pp. 393-398). This category coincides with the process of 'integration' in the present study. The process of 'integration' in the present study is described as follows: 'It refers to change where TT is moving to internalization. TT implements new information purposefully. TT expresses competence and confidence in using new information, attains a changed and developed perspective of the concept and displays a desire to use it for the benefit of the students and for a better teaching' (see Table 6).

Additionally, it must also be notified that the analytical framework - genetic analysis - used in the present study helped us to provide both explanatory and descriptive account of the investigated phenomena rather than only focusing on the belief change process as in the above-mentioned studies. The construction process of formative assessment teacher cognition could not be understood deeply without examining the factors influencing this process. Therefore, the analytical frameworks guided by genetic analysis guided the present study to find out the mediational means and the construction process of formative assessment teacher cognition. Regarding this purpose, the interpretation of the data was contextualized according to the construction process of language teacher cognition about formative assessment (micro-genetic), participants' personal history and past experiences related to language teaching/learning and assessment/formative assessment (cultural-history and ontogenesis), and the mediational sources throughout these processes (Vygotsky & Luria, 1994). Furthermore, in the present study, the processes experienced by the participants had a dialectic nature rather than separate formations. With this dialectic nature, each process influenced the others, and the overall process followed a complex and non-linear trajectory rather than a linear one as in Yüksel and Başaran's (2019) study. With respect to the complexity of change in teacher cognition, Leung (2004) criticized the expectations for a linear belief and practice relationship regarding teacher-based assessment.

By paying tribute to the importance of individual formative teacher assessment practices, Leung (2004) touched upon the issues of teacher belief, teacher knowledge, and teacher professional development in her study. Likewise, Xu and Liu (2009) discussed "the uniqueness and individuality of teachers' assessment practices" (p. 496) by expressing the difficulty and complexity of change in assessment practices. By building on the implications provided by this scope of research, the current study tried to explore the construction process of formative assessment teacher cognition by also revealing the factors influencing this process. When we examine the overall construction process (see Table 27), it is clearly seen that the participants experienced the processes of approval ($n = 21$); and integration ($n = 4$) less than the other processes like dissonance ($n = 29$) and exploration of teaching related beliefs ($n = 32$). This might be an indication for the claim that change in cognitions is "often a very complex, different, highly personal and long-

term process” (Leung, 2004, p. 34), which can also be understood from the individual paths followed by the participants in the present study (see Table 11, 14, 18, 19, 23, 25). Although the present study was conducted in a longitudinal process with multiple data collection methods, the participants as pre-service teachers were constantly building on their teacher cognition around various mediational sources. As a result of this, it was an inevitable result for the low frequencies of the respective processes: ‘approval’ and ‘integration’. Therefore, a follow-up study tracking formative assessment cognition with in-service teachers is one of the suggestions of the present dissertation for further studies.

According to Leung (2004), formative assessment has never been a major issue taught in teacher education because of the dominant influence of psychometrically oriented assessment in education system. By supporting this claim, Graham (2005) reported on the benefits of classroom-based assessment training and assessment-driven planning for pre-service teachers’ professional development. In Graham’s work, teacher change in assessment is described as a personal, complex and long-term process. It is also discussed that professional interactions about assessment in classes and mentored practice experiences had positive influence on pre-service teacher growth in teacher-based assessment. Likewise, in a study examining the impacts of inquiry-based learning on pre-service teachers’ formative assessment practices, Correia and Harrison (2020) put forward that “teachers need time and support to blend in and embed new ideas into their existing practice” (p. 374) and that we need to place emphasis on the dilemmas that teachers face while trying to make changes in their beliefs and practices. In accordance with these works, the present study benefitted from reflective practices (e.g. reflective journals and post-observation conferences) in order to track the construction of formative assessment teacher cognition. Participant pre-service teachers’ beliefs, knowledge, feelings, and practices regarding formative assessment were examined with a sociocultural perspective in order to bring grounded and data-driven explanations for the construction of pre-service teacher cognition. By investigating formative assessment teacher cognition within the context of teacher education, it is believed that the present study contributes to the existing literature of language teacher cognition following the path opened by pivotal

studies (e.g. Hill & McNamara, 2012; Graham, 2005; Leung, 2004, 2005, 2007; Rea-Dickins, 2004; Wiliam, 2001; Xu & Liu, 2009; Yin, 2010).

RQ 3: How do sociocultural resources mediate the construction process of formative assessment teacher cognition? Although there is a great number of studies conducted on language teacher cognition, these studies mainly yield to the cognitivist paradigm which separates teacher beliefs from their practices (Johnson, 2009, 2015; Li, 2020). A more recent review of literature represents studies which suggest investigating language teacher cognition with an understanding of socially embedded nature of the phenomenon (Burns, Freeman, & Edwards, 2015; Johnson, 2009, 2015; Kubanyiova & Feryok, 2015; Li, 2017, 2020; Ngo, 2018; Zheng, 2015). Moreover, there is an increasing number of studies adopting a sociocultural perspective to examine the concept of teacher cognition in teacher education context (e.g. Edwards, 2010; Feryok, 2012; Johnson, 2009, 2015, 2018; Johnson & Golombek, 2011, 2016).

Sociocultural theory is structured around the works conducted by Vygotsky (1978, 1986), and it highlights on the place of the social context and culture in an individual's development (Narayan et al., 2013). Vygotsky's sociocultural theory, as a theory of mind, focuses on the social origins of the cognition by examining the chronological developments of the mental phenomena (Wertsch, 1995). In this theory, cognition is socially mediated, and it is "the internalized result of social interactions" (Vygotsky, 1981, p. 147). According to this theory, when people participate in sociocultural activities, higher mental functions initially occur on the inter-psychological plane (between people). However, these functions are transformed to the intra-psychological plane through internalization (Johnson, 2009, 2015; Johnson & Golombek, 2016). This is a transformative process through which an individual's cognitive structure of concepts, knowledge or skills is shaped (Johnson & Golombek, 2011). When these concepts are placed into the language teaching context, it can be claimed that teachers' beliefs emerge through participation in teaching and learning activities, which leads to the idea that "changes in social activity affect changes in individual cognition" (Johnson, 2015, p.516). According to Johnson (ibid.), teacher cognition within the context of teacher education occurs through participation in social interaction (inter-psychological)

which eventually turns into teacher thinking through internalized psychological tools (intra-psychological).

Johnson (2015) identified teacher education as a significant process enabling pre-service teachers to understand what it means to be a teacher and how to enhance continuous student learning. Based on this identification of teacher education process, it could be claimed that formative assessment is one of the skills that teacher education should foster teacher thinking on it to support student learning. Without a particular attention to the development of formative assessment skills in a training process, it would be difficult for prospective teachers to be aware of the opportunities (for increased student learning) that they can use formative assessment during their teaching practices. As teacher cognition is important in understanding and improving teachers' professional development and classroom practices, the present study was concerned with exploring personal, professional, sociocultural, and historical dimensions of formative assessment teacher cognition.

According to Lantolf and Torne (2006), cognition can be systematically investigated in social context with a Vygotskian sociocultural theoretical perspective. In accordance with the trending participation-oriented view of language teacher cognition scholarship, the present study viewed formative assessment teacher cognition in L2 teacher education context through the lens of a Vygotskian sociocultural theory. Johnson (2015) highlighted on the conceptualisation of teacher learning in L2 teacher cognition research. In L2 teacher education, the most significant teacher learning practices can be specified as the reflective practices (ibid.), where the professional development of L2 teachers can be supported and enhanced. As this participation-in-practice perspective may pave the way for changes and developments in language teacher cognition, the present study benefitted from the social context of practicum process via reflective data collection tools to examine formative assessment teacher cognition.

Studying teacher cognition with a sociocultural perspective reinforces the concept of teacher cognition in which teachers construct meaning in social context rather than being individual meaning-makers (Li, 2020). According to Li (ibid.), micro-teaching and the practicum have an important role in supporting pre-service teacher development. These two components of teacher education are the most important means to provide opportunities for reflection to connect theory and

practice for pre-service teachers. Therefore, the current provision of teacher education programmes has a crucial role on influencing pre-service teachers' beliefs by offering the appropriate conditions for the experiential link between theory and practice (Borg, 2015; Borg, Birello, Civera & Zanatta, 2014). Throughout this process, pre-service teachers explore different ways of constructing pedagogical ideas, and they develop different perspectives into teaching and learning.

In order to make the teacher-learning opportunities observable, the current study paid special attention to participants' understandings through interactions and reflective practices in pre-service language teacher education context. These mediating means in a participation-oriented context created opportunities for transformation of pre-service language teachers as explained in the discussion part for the second research question. Johnson (2015) emphasized that pre-service language teachers' transformation from external to internal happens out of sustained and prolonged participation in teacher education activities regarding both becoming and being a teacher. By analysing a possible transformative context with the multiple data sources, the present study firstly explored the factors influencing the construction of formative assessment teacher cognition, then it explained how this construction progressed. While doing these, the present study also shed light on how these resources mediated the construction process of formative assessment teacher cognition with a sociocultural perspective.

In the related parts of the previous chapters, sociocultural concepts which are relevant to teacher cognition were defined and explained. Mediation is one of the most important concepts in this theory. The role of mediating resources both physical and psychological are significant in this concept. The fundamental reasoning in Vygotskian sociocultural theory is that culturally constructed artifacts such as language and concrete materials mediate learning and an individual's higher forms of mental activity. In a teaching and learning environment, mediational tools can be language, materials, technological tools and any products produced in this environment. Mediation can occur through social relations and can be provided by other individuals, both experts and novices. According to Rogoff (1995), mediation may take place in the form of apprenticeship guided by participation and in interaction with other individuals. Accordingly, in the present study, practicum process, lesson plans, participants' observations and practices, and reflective

practices served as mediational tools. According to Johnson and Golombek (2016), there occurs responsive mediation through the interactions between teachers and teacher educators. Based on this type of mediation, teachers' professional development is provoked because they are active in both explicit (i.e., asking for help) and implicit (i.e., expression of negative emotions) ways (see TT1, Stage II, Post-OC 2, Extract 1 & 2 for an example).

The distance between the learner's level of independent performance and the level of assisted performance is called as the 'zone of proximal development' (ZPD). Johnson and Golombek (2016) proposed L2 teacher education programmes as one of the places where the contradictions occur about the things the pre-service teachers can actually do. These contradictions form a critical period which ignites teachers' professional development. Accordingly, Golombek and Doran (2014) highlighted the importance of the concept of ZPD in teacher learning by explaining that it is "the difference between the level of development already obtained and the level of potential development made possible through mediation by more expert others" (p. 104). According to Li (2020), identifying ZPD and growth points in teacher education programmes is an essential step for further research to understand teacher cognition and teacher learning in teacher education. Mercer (2000) proposed the construct of 'intermental development zone' (IDZ) in order to conceptualize how teachers and learners stay attuned to each other's changing states of knowledge, understanding, and emotions during an educational activity. The concept of IDZ is significant in understanding the role of dialogic interactions in the process of teaching and learning. Mercer (ibid.) positioned IDZ as different from Vygotsky's ZPD as IDZ offers a more dialogic, negotiated, and emergent view of the dynamics of conceptual development through collective dialogue and engagement in joint activity. In the present study, pre- and post-observation conferences served as a place to co-construct the IDZ between the participant trainee teachers and the teacher educator. These settings were important in understanding participants' cognitive/emotional dissonances experienced in the construction process of formative assessment teacher cognition. Moreover, these dissonances held the potential of being turned into growth points through mediation. These growth points are contexts to create conditions for teacher learning and development (Johnson & Golombek, 2016).

The following provides an example from the findings of the present study to indicate how sociocultural resources mediated the construction process of formative assessment teacher cognition. For example, under the section for the code 'prior language learning experiences', in 'Stage I, Interview 4' and 'Stage II, Reflective Journal 11', TT1 revealed that her avoidance from correcting errors and giving feedback was caused by her prior language learning experiences which was shaped negatively because of a teacher's negative and strict assessment attitudes in the past. TT1 indicated this as one of the factors preventing her from implementing KS3 to perform a formative classroom practice (TT1, Stage II, Reflective Journal 11). It might be inferred that TT1's *perezhivanie* (lived experiences, Vygotsky, 1987) shaped her initial cognitions related to formative assessment, and she did not act on it although she had noticed the problems with student learning and knowledge in her classroom practice. TT1 revealed her cognitive/emotional dissonance by uttering 'I didn't correct them' and 'I feel bad about this' in the post-observation conference (Stage II, Post-OC 2, Extract 1 & 2). Her emotionally indexing language and her behaviour in her instructional activities (TT1, Stage II, Classroom Observation 2) clearly indicated these contradictions in her cognition and emotions. This inconsistency between what she believes, think, feel, and know about what she needs to do and what she did in her instructional activity was possibly influenced by a prior language learning experience - teachers in the past.

Through reflection, TT1 developed her expert teacher thinking by providing reasoning for the use of teacher feedback. Her reasoning that feedback is important so that students can learn, and her explanations for this were also signs for her co-constructed formative assessment teacher cognition. In Extracts 1 and 2, in the discursive norms or conversational ground rules of trainer and trainee interaction, an IDZ was established through responsive mediation. TE and TT1 co-constructed the IDZ in response to repeated instances of cognitive/emotional dissonance TT1 experienced in terms of her prior language learning experiences and her concerns about enacting the pedagogical tool of error correction and giving feedback. It was also identified that rhetorical and direct questions helped to reveal the thoughts and feelings of TT1 about what is happening in her class. IDZ here helped TT1 to articulate these feelings and thoughts beyond what she could express alone. However, error correction and teacher feedback were taking part as everyday

concepts in TT1's cognition rather than academic concepts which are intended to be turned into a psychological tool in her teacher cognition through mediation. For this, post-observation conference sessions served as an interpsychological plate, which through mediation, had the potential to turn external forms of social interaction into intrapsychological plate of the participants.

Accordingly, Extract 1 and 2 highlighted the quality and character of the collaborative teaching/learning relationships (*obuchenie*) which unfolded throughout the Post-observation Conference 2. These extracts revealed that support for TT1 to identify missed opportunities of error correction and teacher feedback and their articulation of alternative instructional activities TT1 could have taken enabled TT1 to shape her teacher cognition in a more expert notion. TE encouraged TT1 to articulate her feelings, understandings, and evaluation of her instructional activities, which may create the potential to help TT1 to form her language formative assessment teacher cognition and to interpret and act upon the evidence of student understanding and learning in her future teaching practices. These jointly constructed communicative spaces for interthinking helped the trainee teachers to reconstruct their lived experiences and helped to create conditions for the construction of language teacher cognition.

Another critical point here to discuss might be on the impact of the short intervention placed in the research design of the present study. Before starting the second phase of the study, the participant pre-service teachers attended a three-hour session about formative assessment. The aim with this short informative session was to provide some background knowledge about formative assessment because it was organized as the focus point of the study. Although language assessment is one of the main topics that pre-service language teachers study at their last year of teacher education, these courses are mainly based on the summative part of language assessment with an emphasis on the large-scale standardized testing external to the classroom (Hatipoğlu, 2015, 2017; Şahin, 2019). Therefore, with a brief introduction of formative assessment to pre-service language teachers, it was aimed to bring on the stage the alternative of classroom-based assessment practices which are conducted internal to the classroom by the teacher. With this short intervention, it was tried to clarify the concepts of the differences between summative assessment and formative assessment, up-to-date definitions

of formative assessment, the five key strategies of formative assessment, and why it is important. The aim was not to change the participants' attitudes towards assessment but to prepare them for the necessary knowledge and terminology for the next reflective practices in the next phases of the study. However, when we look at some specific findings from the dataset, we could detect the impact of this intervention as a mediational tool as it triggered cognitive/emotional dissonances and so growth points. It served as a developmental zone for some participants. For example, TT8's instant engagement with the concept of formative assessment in her first pre-observation conference might be because of the recent intervention she was exposed to. The fresh knowledge she attained from the sessions on formative assessment and the framework that they were supposed to use for their reflective journals might have urged TT8 to integrate this recently updated knowledge into her course planning (see chapter for findings – 'courses in teacher education' for a thorough analysis).

By looking at the above-mentioned explanations and analyses, it could be claimed that investigating formative assessment teacher cognition within a teacher education context provided a great opportunity to find out the sociocultural resources mediating the construction process of this cognition. Defining the context of the present study as 'teacher education' naturally produced our justification to use sociocultural theory as the theoretical and methodological framework. As mentioned in the introduction part, pre-service teacher education has turned out to be a transformative context on which we could apply the principles of Vygotskian sociocultural theory. Teacher education is a bounded context with certain elements like reflective practices, multi-directional and context-bounded interactions (occurred between pre-service teachers, teacher educators, mentor teachers, etc.), courses, self- and peer-observations, and teaching practices. These constitutions in teacher education context create the natural data collection environment for the researchers who are interested in finding out the developmental zones (e.g. ZPD and IDZ), growth points, mediational tools, cognitive/emotional dissonances, responsive mediation, and transformational development trajectory within the framework of sociocultural theory. Therefore, by investigating formative assessment teacher cognition with a sociocultural perspective, the present study contributes to the scope of the studies regarding teacher education and teacher cognition and

keeps pace with the changing research paradigm which celebrates the social turn of teacher cognition studies and realizes the limitations of cognitivist paradigm.

Conclusion

In the light of research questions, the present study tried to shed light on student teachers' construction of formative assessment teacher cognition with a sociocultural perspective. Within this aim, the findings revealed the factors influencing the construction of pre-service language teachers' formative assessment cognition and how the construction process progressed. Throughout the study, a complementary qualitative and quantitative content analysis was employed to investigate the concept of teacher cognition. The findings of this research provide insights for the research conducted on language teacher cognition and formative assessment. By utilizing sociocultural theory as the theoretical and analytical framework, the present study offers implications on L2 teacher education and teacher learning.

Based on these significances, it is thought that this study presents a unifying framework of pre-service language teacher cognition, which may contribute to existing literature and further research in conceptualizing the language teacher cognition related to formative assessment with a sociocultural perspective. Through providing data-driven information for language teacher education programmes in Turkey by examining the initial formation of language teacher cognition, the results of this study may help to raise consciousness about the challenges that are encountered by pre-service English language teachers and provide implications to conduct school experience and practice teaching courses for mentor teachers and teacher educators.

This section of the study will provide pedagogical and methodological implications for language teacher cognition research, formative assessment research, language teacher education, and teacher learning. Based on the implications provided in this section, suggestions for further studies will also be provided.

Pedagogical and Methodological Implications

Although formative assessment has been studied with a growing awareness with a focus on learning and assessment activities internal to the classroom (Turner & Purpura, 2016), the body of research related to language teacher cognition has paid relatively little attention to the thought processes underlying teachers' assessment practices (Yin, 2010). Nevertheless, in accordance with the scope of the present study, the relevant literature represents some distinctive studies investigating the role of teacher knowledge, perceptions, experience, and beliefs in classroom-based assessment practices in language teaching contexts (e.g. Büyükkaracı, 2014; Hill & McNamara, 2012; James, 2006; Leung, 2005, 2007; Rea-Dickins, 2004; Wiliam, 2001; Xu & Liu, 2009; Yin, 2010). It must also be noted that despite a growing interest in researching learning-oriented assessment in recent years, the factors influencing the construction of language teachers' formative assessment cognition and the analysis of this construction process have received less attention to the knowledge of the researcher. By being aware of the fact that there has been inadequate attention to formative classroom practice with a focus on teacher's decision-making process, attitudes, beliefs, knowledge and thoughts, the present study focused primarily on the construction of formative assessment teacher cognition and its construction process. As teacher cognition research is important in understanding and improving teachers' professional development and classroom practices, the present study was concerned with exploring personal, professional, sociocultural, and historical dimensions of formative assessment teacher cognition.

Borg (2019) put forward that language teacher cognition research can reach success only when it can provide implications for language teacher education. Therefore, by examining formative assessment teacher cognition in pre-service teacher education context with a sociocultural perspective, it is believed that this study contributes to the related literature and has considerable bearing on teacher education and teacher learning. In supporting this research motivation, Li (2020) asserted that:

Pre-service teacher training deserves particular attention because it is the first step for student teachers to engage in professionalisation. Researching pre-service teacher cognition also provides teacher educators with a window into the effectiveness of teacher education in developing the knowledge and expertise of student teachers (Li, 2020, p. 203).

The investigations on teacher cognition have contributed to the understanding of the process of learning-to-teach significantly by broadening the perspectives of both researchers and practitioners (Borg, 2006, 2015; Li, 2017, 2020; Öztürk, 2015). In line with our findings, prominent studies in the field of L2 teacher education indicate the significance of teacher cognition research in the recognition of the role of teachers' prior learning experiences, educational background, previous coursework, contextual factors and in understanding the importance of reflective practices and self-observation (Johnson, 2006, 2009; 2018; Kubanyiova, 2012; 2015). These studies have demonstrated that it is essential to understand teachers' beliefs and practices for effective teacher education and teacher learning (Lee, 2018).

How people learn to teach languages is a central question which is still at the heart of discussion (Borg, 2006, 2015; Çimen, 2017; Li, 2017, 2020; Öztürk, 2015). Learning-to-teach process can be very challenging for pre-service language teachers as it requires too much effort from trainee teachers (Gülden, 2013). Understanding this process by investigating teacher cognition may contribute to the development of teacher education programmes. Kubanyiova (2015) suggested integrating the research on teacher cognition, teacher learning, and teacher education. As the present study held a critical perspective on these constructs, the results may provide pre-service and in-service teachers an opportunity to see evidence for their understanding and knowledge regarding formative assessment. According to Johnson (2009), this type of research on language teacher cognition might be used as a source for both pre-service teacher education and ongoing professional teacher development. Likewise, Li (2017) emphasized the importance of teacher cognition by stating its significance in developing effective pedagogy and teacher learning. Besides, Johnson and Golombek (2003) highlighted the importance of sociocultural theory for teacher educators in revealing:

important aspects of the cognitive processes at work in teacher learning ... how teachers come to know; how different concepts and functions in teachers' consciousness develop; and how this internal activity transforms teachers' understandings of themselves as teachers, of their students, and of the activities of teaching (Johnson & Golombek, 2003, p. 735).

Researching language teacher education through a Vygotskian sociocultural theoretical perspective is also suggested by more recent studies like Feryok (2019),

Johnson and Golombek (2018a, 2018b), and Golombek (2019). Accordingly, with the adoption of sociocultural theory in understanding formative assessment teacher cognition within the framework of teacher learning, this study provides valuable insights for different stakeholders like teacher trainers, teacher educators, programme development and evaluation specialist, administrators, and Ministry and Higher Education Council authorities.

Moreover, according to Alagözlü (2017), language teacher education is an integrative part of the problems regarding English language teaching in Turkish EFL context. The malfunctions observed in language teacher education are the reasons of the failure in English language teaching and learning (ibid.). Alagözlü (ibid.) evaluated the resources about the teacher competencies in Turkish EFL context, which were produced by Ministry of National Education (henceforth MoNE), and she reported that there are extreme differences among the institutions which produce graduates of ELT. She continued her evaluation of teacher education by mentioning the effort demonstrated by Higher Education Council to create a standardized teacher education system with the same curriculum to be used in teacher training. However, Alagözlü (ibid.) criticized these initiations because of their lack of data-driven and research-based contents. Accordingly, it is believed that the present research might be one of the studies which bring data-led explanations and implications for curriculum designs in pre-service and in-service teacher training in Turkish EFL context.

In order to meet the developments in the globalization process, MoNE in Turkey implemented English language teaching curriculum innovations in Turkish EFL context, and English Language Teaching Programme (henceforth ELTP) underwent substantial changes within the larger curriculum reforms adopted successively in 1997, 2006, 2013 (Gürsoy & Eken, 2018), and lastly in 2018. In these ELTPs, major differences regarding language assessment took place in primary and secondary school English language teaching and learning. As for the ELTP implemented in 1997, studies evaluating this programme reported weaknesses for the conceptualization of testing and assessment, which were mainly classified as multiple-choice tests, short-answer questions, and paper-based grammar tests with no place for tests including the skills of speaking, writing, and listening (Arıbaş & Tok, 2004; Büyükduman, 2005; Mersinligil, 2002). Furthermore,

Mirici (2000) reported on the absence of progress tests at the end of the units in the coursebooks, and Er (2006) criticized the lack of alternative assessment types like peer or self-assessment. Similar criticisms were also yielded on the ELTP enacted in 2006. For example, Ocak, Kızılkaya, and Boyraz (2013) commented on the abundancy of traditional tests like multiple-choice and fill-in-the-blanks in this programme. Although there was an initiation to include alternative assessment tools like performance tasks and portfolios, these were evaluated as ineffective in motivating students to learn English (Orakçı, 2012; Yaman, 2010), and there was again a need for integrating all skills in assessment (Yaman, 2010). Studies on 2006 ELTP also reported on the lack of information provided for teachers about testing and assessment (Cihan & Gürten, 2009; Örmeci, 2009). With the 2013 ELTP, classroom-based assessment was for the first time put on the agenda as the programme highlighted on assessing student performance by using alternative assessment practices in the classroom rather than solely testing them (MoNE, 2013). This new edition was evaluated as a strength of the programme based on teachers' perceptions and beliefs (Bayraktar, 2014; Merter, Şekerci, & Bozkurt, 2014). However, in contrast to these findings, Özüdoğru and Adıgüzel (2015) reported on teachers' criticisms regarding lack of information about the assessment types. When 2018 ELTP is analysed, it is clearly seen that the programme builds on the notion which was initiated by the 2013 ELTP for project and portfolio evaluation, peer and self-evaluation, and teacher observation for assessment. As different from the 2013 ELTP, 2018 ELT curriculum provides more detailed information about the types of classroom assessment based on Common European Framework of Reference for Languages, CEFR (Acar, 2019), and the programme includes the concept of formative assessment, as well. In line with the principles of formative assessment (Black & Wiliam, 2009, 2018), MoNE (2018) for ELTP regarding primary and secondary education described the assessment approach of the curriculum as follows:

It is critically important to accentuate that learning, teaching and testing are part of a whole, interacting constantly with each other in shaping not only teachers' instructional choices but also students' learning strategies, and even parents' attitudes toward what is critical and valuable in educative provisions (MoNE, ELTP, 2018, p. 6)

Furthermore, in the 2018 ELTP, the explicit philosophy of the curriculum toward assessment is introduced with basic assessment procedures which include both summative and formative assessment practices.

By demonstrating the evolution of assessment in ELTPs in Turkish EFL context in a timeline, the researcher's aim is to illustrate the change in curricular and pedagogical perspectives regarding assessment of student knowledge and learning. It is clearly seen that there has been a transformation from traditional assessment practices to classroom-based and learning-oriented assessment practices in ELTPs in Turkey. Although the execution of these practices and their applicability is another research question out of the scope of the present study, the increasing significance of formative assessment in the design of English Language Teaching Programmes is undeniable. Although classroom-based assessment has been advocated in educational designs progressively since the beginning of 2000s across the world (e.g. Assessment Reform Group, 2002; Hawaii Department of Education, 2014; Ministry of Education, Ontario, 2010; School-Based Assessment Projects in Hong Kong, 2010; Scotland's National Assessment Resource, 2010; World Language Assessment in Wisconsin, 2010), it is quite late for Turkish education system to give place to the concept of formative assessment only in the 2018 ELTP. However, the transformation of assessment types in ELTPS in Turkey indicates us the importance of introducing formative assessment in pre-service teacher education. In supporting this idea, Hatipoğlu's studies (2015a, 2015b, 2017) conducted in Turkish EFL context reported on teachers' need for training on classroom-based assessment as they have more problems with this side of the issue than with summative assessment. According to some distinctive studies on formative assessment (e.g. Black & William, 2018; Gardner, 2007; Schneider & Randel, 2010), training and consistent support are necessary for the development of formative assessment skills and procedures. Therefore, by integrating formative assessment in a teacher-cognition-oriented investigation, it is believed that the present study has opened a door -both theoretically and methodologically- for an understanding of appreciating formative assessment in pre-service teacher education. In this way, further implications might be produced for pre-service and in-service teacher training on classroom-based assessment as Hatipoğlu (ibid.) suggested.

According to Li (2019), studies conducted on teacher cognition are necessary in terms of improving teacher learning, pedagogy, and educational quality. Similarly, for Alagözlü (2016), teacher beliefs have a significant role in their professional and personal growth, so pre-service language teachers should be supported and encouraged through awareness-raising activities to improve their teaching self-concept. In line with these ideas, by looking at the findings of the present study, it might be implied that if pre-service teachers notice their beliefs, thoughts, and knowledge regarding formative assessment and develop an understanding of their own formative classroom practices, this may contribute to their expertise as teacher cognition has a direct impact on teachers' perceptions, behaviours, and their judgements of learning and teaching practices in the classroom (Li, 2019). Otherwise, we may end up with numerous curriculum innovations including formative assessment but with teachers who cannot adopt these innovations properly, which is not a faraway fact in Turkish EFL context as indicated by Büyükkarcı (2014):

Despite course requirements, teachers' positive beliefs and attitudes, the results of the study show that language teachers do not apply formative assessment practices as required in the national curriculum. Instead of using assessment formatively, they mostly use assessment for summative purposes (Büyükkarcı, 2014, p. 107).

European Portfolio for Student Teachers of Languages (henceforth EPOSTL) is a reflection tool for language teacher education, which was developed by European Centre for Modern Languages of the Council of Europe (Newby, Allan, Fenner, Jones, Komorowska, & Soghikyan, 2007). EPOSTL consists of different sections for pre-service language teachers to self-assess their teaching skills including assessment. Before self-reporting on assessment skills, the portfolio provides a brief section about the main principles of language assessment. This section includes descriptions for both summative and formative assessment, and the latter is described as "assessment procedures may be used ... to provide information on the learner's strengths and weaknesses and to help the teacher and/or learner to plan further work" (p. 51). EPOSTL is a significant example which introduces formative assessment among the skills that must be acquired by student teachers in pre-service teacher education. EPOSTL's process-oriented evaluation framework also emphasizes on these learning-oriented assessment skills as something that requires on-going development as a part of teacher learning even

after graduation. Accordingly, by investigating the construction process of formative assessment teacher cognition, it is believed that the present study provides insights for the teacher-self-assessment tools like EPOSTL with data-driven discussions. Furthermore, the analysis of the construction process of pre-service teacher cognition may as well contribute to future research related to teacher change and development.

However, although the importance of formative assessment was emphasized in curricular designs (e.g. Assessment Reform Group, 2002; Education Commission, 2000) or in reflection tools like EPOSTL, courses and coursebooks related to testing and assessment in L2 teacher education generally focus on topics like test construction, analysis of tests, validity, item analysis, etc. (Brown & Bailey, 2008). Similarly, Fulcher (2012) criticized the fact that the needs of classroom teachers are only fulfilled with the abundance of techniques oriented with large-scale standardized testing in assessment-related textbooks. Besides, related literature also concludes that formative assessment is conducted mainly based on the application of standardized testing and assessment with formative purposes (Andersson & Palm, 2017a; Black & William, 1998, 2018; Fulcher, 2012; Laveault & Allal, 2016). Stiggins (2014) asserted that assessment for learning has not become embedded in classroom practice because of society's over-reliance on standardised tests. Accordingly, it would not be wrong to claim that teachers also need to develop classroom-based assessment skills in addition to preparing and administering tests as a part of their assessment literacy which is "an individual's understandings of the fundamental assessment concepts and procedures deemed likely to influence educational decisions" (Popham, 2011, p. 267).

Although formative assessment is an important component of assessment literacy, a large number of studies illustrate teachers' tendency for using summative assessment rather than formative assessment (e.g. López & Bernal, 2009; Munoz, Palacio, & Escobar, 2012; Shohamy et al., 2008). In addition to the differences between assessment beliefs and practices, the reasons for using summative assessment predominantly were stated as limited time, class size, high-stakes examination system, workload (Rogers et al., 2007), and contextual factors, teaching experience, and lack of training (Shohamy et al., 2008). For example, in a study conducted in higher education context, Lees and Anderson (2015)

investigated the impacts of assessment literacy on teaching methods by analysing academics' understanding of summative and formative assessment methods. The results of their study indicated that the participants had a detailed understanding of summative assessment while they had a poorer awareness of formative assessment practices, which was interpreted by the researchers as unrealized potentials of formative assessment for educators. Likewise, according to Popham (2011), only when teachers have a good understanding of assessment, in other words assessment literacy, they can use formative assessment practices as "instruction-enhancing tools" (p. 271). The critique made by Popham (ibid.) brings the issue of the importance of assessment teacher cognition studies to the surface. In supporting these ideas, Rea-Dickins (2006) and Hamp-Lyons (2017) reported on the efficacy of language assessment literacy on the implementation of learning-oriented assessment in the classroom. When we look at the inferences made by the studies in this paragraph, it might be claimed that the present study has the potential to provide implications for the literature of language assessment literacy, as well.

When the studies on language assessment and assessment literacy in Turkish EFL context are scrutinized, the general picture can be summarized as in Table 28 below:

Table 28

Emerging Themes from the Studies Conducted on Language Assessment and Assessment Literacy in Turkish EFL Context

Emerging Themes	Source
• inefficacy of pre-service language assessment training	Hatipoğlu (2015a, 2015b, 2017); Mede & Atay (2017); Öz & Atay (2017); Sarıyıldız (2018); Sevimeş Şahin (2019); Şahin (2015)
• inadequate number of courses on language assessment	Hatipoğlu (2010); Hatipoğlu & Erçetin (2016); Şahin (2019)
• negative effects of examination system on classroom-based assessment practices	Gönen & Akbarov (2015); Şahin (2019)
• negative effects of contextual factors like large class size, school management, and excessive workload on teachers' assessment practices	Büyükkarcı (2014, 2016)
• lack of integrity between assessment theory and practices	Hatipoğlu & Erçetin (2016); Sarıyıldız (2018); Sevimeş Şahin (2019)

* • negative effects of prior assessment experiences on teachers' perceptions of assessment	Hatipoğlu (2015a)
• low levels of language assessment literacy among teachers	Büyükkarcı (2016); Hatipoğlu (2015b); Mede & Atay (2017); Öz & Atay (2017); Şahin (2015, 2019)
* • effects of pre-service and in-service assessment training courses on teachers' assessment beliefs and practices	Büyükkarcı (2014); Han & Kaya (2014); Öz (2014)

Only a few of the studies in Table 28 can be associated with teacher cognition as they delve into understanding teacher beliefs, perceptions, and practices regarding assessment (e.g. Büyükkarcı, 2014; Han & Kaya, 2014; Hatipoğlu, 2015a; Öz, 2014). Among these studies, Büyükkarcı (2014) and Öz (2014) specifically focused on teacher beliefs regarding formative assessment in mainly quantitative survey designs as different from the qualitative case study design of the present study. Besides, the present study also contributes to both teacher cognition and formative assessment literature by examining the concepts with a sociocultural perspective. In line with the rationale behind the present study, Scarino (2013) propounded that we must understand teachers' inner world regarding their beliefs, knowledge and understanding so that we can understand how these shape their interpretations, conceptualisations, decisions and judgements in assessment.

To give more detailed information about the conclusion of the study by Öz (2014), he reported that the participant L2 teachers in his study did not involve their students into the assessment process as opposite to the main principles of assessment for learning, and these teachers did not assist learners' weaknesses to improve student learning. Öz's (ibid.) study revealed that participant Turkish EFL teachers relied on traditional methods of assessment rather than formative assessment practices, and there was observed significant differences in teachers' assessment practices based on years of teaching experience, gender, and private vs. public school variables ($p < 0.05$). Similarly, in his small-scale mixed method study, Büyükkarcı (2014) discussed the issue that in-service language teachers at primary schools could not apply formative assessment properly although they had stated positive attitudes toward this assessment practice. Büyükkarcı (ibid.) stated the teachers' heavy workload and large class sizes as the reasons for this

inconsistency between assessment beliefs and practices. Apart from these examples, the overall evaluation of Table 28 indicates us the gap in the scope of the studies regarding formative assessment teacher cognition in Turkish EFL context. Therefore, it is believed that the present study will play as a springboard to encourage further studies on pre-service teacher cognition and classroom-based assessment.

In addition, although their main focus is on general assessment practices and assessment literacy, some studies in Turkish EFL context have touched upon the issue of formative assessment and the shortcomings in its training and implementation (e.g. Hatipoğlu, 2015a, 2015b, 2017; Sevime Şahin, 2019; Şahin, 2019). For example, in a more recent study, Şahin (ibid.) advocated the previous literature by referring to the inadequacy of assessment training in pre-service teacher education. Besides, in supporting the results by Hatipoğlu (ibid.), she put forward that summative assessment is dominant in the course contents in Turkey while formative assessment is neglected, and pre-service language teachers evaluated English Language Testing and Evaluation (henceforth ELTE) course content as inadequate in terms of formative assessment, alternative assessment tools, and assessment of productive skills. Accordingly, these relevant studies all suggest revising the effectiveness of ELTE course in L2 teacher education in terms of classroom-based assessment, learners' training needs, alternative assessment types, and course content. At this point, it is thought that the present study might play a significant role in Turkish EFL context by displaying insights for the development of teachers' formative assessment skills and implications for the design of the assessment courses and formative assessment trainings with reflective practices in a sociocultural context. It is clear that new regulations are required to improve language teachers' assessment literacy by balancing the theory and practice for both summative and formative assessment. Regarding these suggestions and implications, educational reforms and curricular innovations are needed in both pre-service and in-service teacher training as also suggested by Öz (2014).

In the current study, pre- and post-observation conferences between the trainee teachers and teacher educator were among the crucial sites where we explored the construction of formative assessment teacher cognition. These

reflective practices, in the present study, were proven to be critical in the construction of pre-service teacher cognition, which is believed to hold important implications for the design and structure of teacher education programmes. Morton and Gray (2010) clearly demonstrated that lesson planning sessions conducted between the teacher educator and the trainee teachers create space for joint meaning construction as these discursive practices allow trainee teachers to both externalize and internalize their practical knowledge. Likewise, as Sert (2015) suggested, dialogic reflections conducted during teacher education are instrumental in “opening a new window for understanding” (p. 163). By looking at this statement by Sert (*ibid.*), it might be claimed that utilizing reflective practices in teacher education has a significant role in the construction process of teacher cognition and in teacher learning. Therefore, integrating structured reflective practices into the course components in teacher education may contribute to the betterment of these programmes in increasing the quality of teacher learning. Besides, according to Munro and Sheehan (2017), in order to prevent counter-productive results with too much theoretical input in teacher trainings, we need to promote positive attitudes towards assessment among teachers, and this can be managed only by focusing on teachers’ reflecting on their own experiences regarding assessment in the trainings. At the intersection of teacher learning and formative assessment, the main inquiry would be the question of “How can we learn from the work in teacher development with reference to formative teacher assessment?” (Leung, 2004, p. 39).

In L2 teacher education, the dialogic interactions between teacher educators and student teachers are among these reflective practices (Johnson, 2015), where the professional development of L2 teachers can be supported and enhanced by teacher educators. These dialogic interactions create a participation-in-practice environment which lead the way for changes and developments in L2 teacher cognition. According to Barduhn and Johnson (2009a), recent teacher education view attaches importance to enhancing trainee teachers to become reflective practitioners. Based on this evolved perspective for teacher education, the present study contributes to current work on reflective practice by utilizing sociocultural theory as the theoretical and analytical framework. In addition to reflective practices facilitated in data collection process (e.g. reflective journals), this study improved its

scope by using sociocultural discourse analysis (SCDA) as the data analysis method to examine the responsive mediation, intermental development zone, and cognitive/emotional dissonances in pre- and post-observation conferences. By looking at the results regarding the factors influential on the construction of pre-service language teacher cognition and the major shifts experienced in this construction process, SCDA can be suggested as a proper data analysis method to understand dialogic reflective practices in teacher education with a sociocultural perspective. Another suggestion might be for the integration of SCDA informed findings to the design of pre-service and in-service teacher training programmes.

In the present study, the construction process of formative assessment cognition was described within six major shifts: *dissonance*, *exploration of teaching-related beliefs*, *self-examination*, *re-examination of alternatives*, *approval*, and *integration*. As it was previously explained in section for findings, construction process experienced by the participants was not linear, and it was shaped by the main factors forming participants' formative assessment teacher cognition. It must be again accentuated that not every participant followed the same steps in the same order nor do all participants experienced all of these processes in the same amounts as it is illustrated in Table 11, 14, 18, 19, 23, 25, and 27. As a part of reflective practices, trainee teachers in the present study delved into their practices and beliefs regarding language teaching and learning, assessment, and specifically formative assessment. In supporting the rationale behind the reflective data collection methods in the present study, Johnson and Golombek (2016) and Johnson (2015) propounded that systematic reflection and articulation of beliefs may help to shape teacher cognition either by confirming teachers' current stance or by urging them to make changes in cognitions. In the present study, we described the major shifts in pre-service language teacher cognition as a construction process. However, this construction process has also relevance to the change in cognition. In order to clarify the complexity and nonlinearity of change in teacher beliefs and practices, Yatağanbaba (2020) summarized the perspective made by Freeman:

As in line with Freeman's implications for change (1989) from almost three decades ago, change does not mean doing things differently, in other words, it can be in the form of affirming the current practices or becoming aware of a certain practice. In addition to that, change is not necessarily 'immediate or complete' (Yatağanbaba, 2020, p. 300).

Besides, if any changes are to take place at a later stage, realisation of new insights is an essential stage, as “changes in human beliefs require time” (Mattheoudakis, 2007, p. 1283).

Accordingly, by utilizing reflective practices, this study has contributed to the participants' awareness of formative assessment. It is hoped that the results of the present study will initiate a process of change in the participants' formative assessment teacher cognition by creating a positive impact on their formative classroom practices. However, to understand the long-lasting effects of this process on teacher cognition, a further study might be suggested on the initial teaching experiences of the same trainee teachers when they start profession. This issue is further elaborated on in the upcoming section for suggestions for future studies.

Suggestions for Further Studies

Bearing the limitations in mind, suggestions for further studies are provided in this section of the study. First of all, the present study attempted to explore pre-service formative assessment teacher cognition with a sociocultural perspective and the construction process of these cognitions and practices throughout school experience and practice teaching courses in an academic year. As a longitudinal study, the duration of investigation was limited to an academic year. Therefore, this longitudinal perspective could be broadened by carrying out a continuum or follow-up study with the same participants in their initial years of actual teaching. In this way, validity and reliability issues could be strengthened, and change in teacher cognition could be followed with a more long-reaching and meticulous perspective. Moreover, comparison could be made between the process of pre-service teacher education and in-service teaching experience to observe if there are any differences in formative classroom practices. These comparisons could be also conducted in terms of changing and developing formative assessment teacher cognition. Indeed, this correlation could be carried out between novice EFL teachers and experienced ones to identify their formative assessment cognitions and assessment beliefs and needs.

In future investigations, it might be possible to execute a similar teacher-cognition-oriented study to see viability in different contexts like tertiary context, prep-school context, private school context, etc. Further research could also focus

on re-production research by replicating the study design and methodology in different EFL contexts and institutional contexts in order to increase the generalizability of the current findings on formative assessment teacher cognition. Furthermore, future studies could generate a more general perspective in a study investigating assessment teacher cognition with a sociocultural theory by considering summative and formative assessment in tandem.

One of the obvious limitations of the present study is the lack of classroom interaction analysis regarding formative classroom practices. Therefore, further studies could contribute to the methodological design by increasing data verification with the addition of interactional analysis of teachers' formative classroom practices. By increasing the strength of triangulation, data tools coming from actual classroom interaction could be also used for video-recorded stimulated recall activities.

As also suggested by Öztürk and Aydın (2019) for English language teaching education in Turkey, teachers must engage in collaborative and reflective professional development activities for an ongoing learning-to-teach process. Accordingly, trainings for the awareness and development of teachers' formative assessment skills could be organized, and the efficacy of these trainings on teachers' pedagogical practices and student learning could be investigated. While designing these trainings, inquiry must be on "what elements should be included in training and supporting pre-service and in-service teachers so they can effectively engage in assessment that supports learning?" (Turner, 2012, p. 75). Furthermore, by enacting an experimental study design on these trainings, comparisons could be made between control groups and experiment groups. Again, teachers' changed cognitions, effective assessment practices, and students' learning level as a result of these professional development trainings could be questioned. In this way, outcomes of the trainings could be integrated into the curricular designs of pre-service and in-service teacher trainings.

By looking at the mainstream definitions, general principles, and strategies behind formative assessment, we can easily see the main point as 'student learning' and 'ongoing learning'. In this regard, the obvious next research questions could be "what exactly is evidence of learning?" (Rea-Dickins, 2001, p. 455) and "how do you know when they know it?" (Black & William, 1998, p. 57). Literature has various examples for experimental study designs investigating student learning based on

formative assessment (e.g. Andersson & Palm, 2017b, 2018; Brookhart et al., 2008, 2010; Mazzie, 2008; Schneider et al., 2007; Wiliam et al., 2004). However, further studies could analyse classroom interaction and track student learning based on teachers' formative classroom practices with an interactionist perspective in CA or SCDA informed study designs. Furthermore, by adding self-report, interview, and observational data from both teachers and students to this data collection process as also suggested by Correia and Harrison (2020), further research could be carried out to explore probable mismatches between student and teacher perceptions of effective formative assessment practices in EFL classrooms. In order to reach a more holistic understanding of teachers' and learners' roles in learning, we need to integrate both teachers' and students' perspectives (ibid.).

Last but not least, the suggestions made for further studies above could help the field answer two critical questions which were the igniting factors to conduct the present study: "(1) How do language teachers create meaningful learning environments for their students? (2) How can teacher education and continuing professional development facilitate such learning in language teachers?" (Kubanyiova & Feryok, 2015, p. 435). At the intersection of teacher cognition and formative assessment, Turner and Purpura (2016) suggested conducting case studies to display the evidence of learning and learning impediments by asking the question of "how can teacher education best prepare teachers to understand how students learn?" (p. 269). In this way, further research could bridge the gap between teacher cognition, teacher learning, classroom practice, and student learning. This study also sees value in pursuing the generation of systematic policies that support formative assessment practices in EFL classrooms as well as formative assessment training for the relevant stakeholders -teachers, principals, teacher educators, and educational administrators.

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APPENDIX-A: Interview Guidelines

Interview Guide I

Section A: Background Information

Age:

Graduated high school:

GPA:

Grades of the departmental courses:

Section B: Education / 1

(1) When did you start learning English?

(2) Can you tell me about your experiences as a language learner in primary school/secondary school/ high school?

a) How did you learn English?

b) What kinds of activities did your teachers use?

c) Do you recall whether you enjoyed English lessons?

d) What approaches were used?

(3) Can you tell me about your prior English teachers?

a) How were their teaching styles?

b) Were they good teachers? If so, why?

(4) Why did you choose the language department at high school? Which factors did affect your decision?

(5) How was language class? What did you learn? Were you satisfied with language education?

(6) What are your experiences of being assessed in language classroom? What were the general assessment strategies of your previous language teachers?

(7) Do you feel that your own education as a student will have any influence on the way you teach in your teaching practices?

Section C: Education / 2

(1) Why did you choose to study at the department of English language teaching after taking university entrance exam?

(2) What were your initial feelings at the beginning of your undergraduate education?

(3) Can you tell me about your experiences as a pre-service language teacher at the beginning of your university life?

a) How were the initial courses?

b) Did these courses contribute to you as a learner and as a prospective language teacher? How?

(4) Can you please evaluate your pre-service teacher education until now? In what aspects was it beneficial for you as a prospective teacher?

a) Which courses did you take throughout your undergraduate education?

b) Have you found courses effective in developing your teaching skills?

c) Which aspect(s) of the course(s) do you find most memorable?

Interview Guide II

Section A: Teaching / 1

- (1)** Have you ever worked as an English teacher in an institution?
 - a)** How long?
 - b)** What are your experiences?
 - c)** Was it effective in developing your teaching skills?
- (2)** What are you planning to do after you graduate from the ELT department? Where would you like to work?
- (3)** What do you think about the KPSS exam?
 - a)** Are you studying for it?
 - b)** In what aspects is it beneficial for you as a teacher?
- (4)** How and why did you want to become an EFL teacher?
- (5)** What are the features of a good language teacher?
- (6)** What is your understanding of EFL teaching in Turkey?
 - a)** curriculum
 - b)** assessment
 - c)** text-books
- (7)** What are the most important factors that helped you develop as a prospective language teacher?
- (8)** What do you feel the most satisfying aspect of teaching EFL is, and what is the hardest part of the profession?
- (9)** What do you feel your strengths as a prospective EFL teacher are, and your weaknesses?

Interview Guide III

Section A: Teaching / 2

- (1) What are the important and difficult parts in language teaching? Why?
- (2) What are teacher and learner roles in a language classroom?
- (3) What do you think about preparing and using a lesson plan?
- (4) Do you believe in the effectiveness of pair work, group work and individual work?
 - a) What are students' attitudes towards pair and group work?
 - b) What are the possible problems when implementing pair and group work?
 - c) What is the role of teacher during group and pair work?
- (7) What are the roles of teacher questions?
- (8) What is the role of teacher feedback when a student makes a mistake?
 - a) What are the ideal ways of giving feedback and correcting errors?
- (10) What do you think about classroom management?
 - a) What are the most difficult parts of classroom management?
- (11) What do you think about using English as the instruction language?
- (12) Does the host school you practice in promote any particular style of teaching?
- (13) Are there any restrictions on the kinds of materials mentor teachers use or on the content and organization of the lessons?
- (14) Do students come to the class expecting a particular type of language course?

Interview Guide IV

Section A: Assessment

- (1) How can a language teacher foster student learning?
- (2) What is the role of assessment in student learning?
- (3) What are the components of assessment?
- (4) What are your experiences of the courses related to testing and evaluation?
- (5) Do you believe that you have received sufficient training to implement language assessment?
- (6) What is the role of assessment in everyday practice of teaching?
- (7) How can we make assessment teacher-based?
- (8) Do you think it is possible to integrate learning and teaching with assessment?
If so, how?
- (9) How can a teacher check learners' understanding during the lesson?
- (10) What are the ways to assess learners' progress effectively?
- (11) What are the in-class activities to monitor and assess learners' participation and performance?
- (12) Can a teacher use the process and results of assessment to inform his/her teaching and plan learning for learners? How?

Interview Guide V

Based on the last teaching practice:

Section A: Formative Assessment

- (1)** Were you able to integrate Formative Assessment into the teaching and learning process in your last teaching practice? Why and how?
- (2)** What were your in-class activities to monitor and assess learners' participation and performance?
- (3)** Can you tell me about the frequency of implementing Formative Assessment in your last teaching practice?
- (4)** What do you think about the timing of implementing Formative Assessment?
- (5)** Do you believe that you have sufficient skills to implement Formative Assessment?
- (6)** Are you willing to integrate Formative Assessment into your teaching? Why?

Interview Guide VI

Section A: General reflection on teacher education process

(1) Do you feel that your own education as a student has had any influence on your current teaching philosophy and the way you teach in your teaching practices?

- a) Teachers in the past and their attitudes
- b) Special experiences that you could not forget
- c) Studying and learning habits

(2) In your teacher education, what have the greatest influences on your development as a teacher been?

(3) What are the benefits of pre-service teacher education for you as a prospective teacher? How did it contribute to you as a prospective teacher?

- a) Courses
- b) Teacher educators
- c) School experience
- d) Practice teaching
- e) Mentor teacher

(4) In a general sense, can you please evaluate the years you spent in pre-service teacher education? In what aspects was it beneficial for you as a prospective teacher?

(5) Can you tell me the things that frustrated you in your teaching practices?

(6) What is the gap between your teaching vision and the reality you experienced during your teaching practices?

(7) Can you describe one particularly good experience you have had in your teaching practices as a prospective EFL teacher, and one particularly bad one?

- a) What is your idea of a 'successful' lesson?

Section B: Assessment & Formative Assessment

Based on teaching practices:

- (1)** How can a language teacher foster student learning?
- (2)** What is the role of assessment in student learning?
- (3)** What are the components of assessment?
- (4)** What is the role of assessment in everyday practice of teaching?
- (5)** How can we make assessment teacher-based?
- (6)** Do you think it is possible to integrate learning and teaching with assessment?
If so, how?
- (7)** How can a teacher check learners' understanding during the lesson?
- (8)** What are the ways to assess learners' progress effectively?
- (9)** What are the in-class activities to monitor and assess learners' participation and performance?
- (10)** Can a teacher use the process and results of assessment to inform his/her teaching and plan learning for learners? How?
- (11)** Were you able to integrate Formative Assessment into the teaching and learning process in your teaching practices?
- (12)** What were your in-class activities to monitor and assess learners' participation and performance?
- (13)** Can you tell me about the frequency of implementing Formative Assessment in your teaching practices?
- (14)** What do you think about the timing of implementing Formative Assessment?
- (15)** Do you believe that you have sufficient skills to implement Formative Assessment?
- (16)** Are you willing to integrate Formative Assessment into your teaching? Why?

APPENDIX-B: The Framework For Reflective Writing in Stages II, III, IV, and V

Aspects of formative assessment by Wiliam and Thompson (2008, p. 63):

	Where the learner is going	Where the learner is right now	How to get there
Teacher	KS1 Clarifying learning intentions and criteria for success	KS2 Engineering effective classroom discussions and other learning tasks that elicit evidence of student understanding	KS3 Providing feedback that moves learners forward
Peer	Understanding and sharing learning intentions and criteria for success	KS4 Activating students as instructional resources for one another	
Learner	Understanding learning intentions and criteria for success	KS5 Activating students as the owners of their own learning	

- Please choose at least one formative assessment moment (successful or unsuccessful) from your last teaching session, describe those teaching moments in detail, and reflect on it in terms of successful or unsuccessful use of formative assessment based on the framework and five key strategies by Wiliam and Thompson (2008).

APPENDIX-C: Transcription Conventions Used in The Present Study

Symbol	Use
(.)	Indicates pause in speech.
[Square brackets denote a point where overlapping speech occurs.
()	Where there is space between brackets denotes that the words spoken here were too unclear to transcribe.
(())	Where double brackets appear with a description inserted denotes some contextual information where no symbol of representation was available.
:::	Colons appear to represent elongated speech, a stretched sound.
-	Indicates an abrupt halt or interruption in utterance.
° °	Indicates reduced volume speech.
? or ↑	Indicates rising pitch.
\$word\$	Dollar sign indicates that the speaker utters the word with a smile.
→	Indicates the analyst's particular interest in that line.
NAME	Used in order to anonymise the addressee in the dialogues between the teacher educator and the participants
TE	Teacher educator
TT1, TT2,	Trainee teacher 1, Trainee teacher 2
...	

APPENDIX-D: Informed Consent Form

GÖNÜLLÜ KATILIM FORMU

.../.../.....

Merhaba,

Yapacak olduğumuz çalışmaya gösterdiğiniz ilgi ve bize ayırdığınız zaman için şimdiden çok teşekkür ederiz. Bu formla, kısaca size ne yaptığımızı anlatmayı ve bu araştırmaya katılmanız durumunda neler yapacağımızı anlatmayı amaçladık.

Bu araştırma için Hacettepe Üniversitesi Etik Komisyonu'ndan izin alınmıştır. Bu çalışmada amaç aday öğretmenlerin dil öğretmeni bilişini (language teacher cognition) biçimlendirici değerlendirme (formative assessment) açısından sosyokültürel bir perspektif ile incelemektir. Araştırma, bir nitel çalışma kapsamında meslek öncesi İngilizce öğretmenleri üzerine odaklanarak, biçimlendirici değerlendirme öğretmen bilişi oluşumunu uzun vadeli bir durum çalışmasında incelemeyi amaçlamaktadır ve Doç. Dr. Nuray ALAGÖZLÜ danışmanlığında yürütülmektedir.

Araştırmaya gönüllü olarak katılım esastır. Çalışmanın verileri doküman analizi, yansıtıcı yazımlar, mülakat görüşmeleri, öğretmenlik uygulamalarının gözlemi ve her bir katılımcı için sınıf gözlemi öncesi ve sonrası ders sorumlusu ile yapılan görüşmelerden oluşacaktır. Mülakat görüşmeleri ve gözlem öncesi ve sonrası ders sorumlusu ile yapılacak görüşmeler ses kayıt cihazı ile kayıt altına alınacaktır. Veri toplama süreci genel olarak kişisel rahatsızlık verecek soruları içermemektedir. Ancak, katılım sırasında sorulardan ya da herhangi başka bir nedenden ötürü kendinizi rahatsız hissederseniz veri toplama işlemi yarıda bırakıp çıkmakta serbestsiniz. Böyle bir durumda, çalışmayı yürüten kişiye, veri toplama işlemi tamamlamak istemediğinizi söylemek yeterli olacaktır.

Verdiğiniz bilgiler kesinlikle herhangi bir üçüncü şahıs veya grupta araştırma amacı dışında paylaşılmayacak ve gizli kalacaktır. Bu bilgileri okuyup bu araştırmaya gönüllü olarak katılmanızı ve size verdiğimiz güvenceye dayanarak bu formu imzalamanızı rica ediyoruz. Sormak istediğiniz herhangi bir durumla ilgili araştırmacı ile her zaman iletişime geçebilirsiniz. Araştırma sonucu hakkında bilgi almak için aşağıdaki iletişim adreslerine ulaşabilirsiniz.

İlgili prosedürü onaylıyor ve yanıtlarınızın bilimsel araştırma amacıyla kullanılmasına izin veriyorsanız lütfen belgeyi imzalayınız. Katılımınız için teşekkür ederiz.

Arařtirmacı

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Sorumlu Arařtirmacı

Adı-Soyadı: Doç. Dr. Nuray ALAGÖZLÜ
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“Yukarıda anlatılan çalıřmadan rahatsızlık hissettiđim zaman çekilebileceđimi, arařtırmacıyla paylařmıř olduđum tüm kiřisel bilgilerimin gizli tutulacađını ve verdiđim bilgilerin yalnızca bilimsel amaçlarla kullanılacađını anlamıř bulunuyorum. Bu belgeyle, çalıřmaya gönüllü olarak katılacađımı beyan ederim.”

Tarih:**Katılımcı,****Ad-Soyad:****Adres:****Telefon:****E-posta:****İmza:**

APPENDIX-E: Ethics Committee Approval

	T.C. HACETTEPE ÜNİVERSİTESİ Rektörlük
Sayı : 3383172/ 433-290	19 Ocak 2018
EĞİTİM BİLİMLERİ ENSTİTÜSÜ MÜDÜRLÜĞÜNE	
İlgi: 02.01.2018 tarih ve 2 sayılı yazınız.	
<p>Enstitünüz Yabancı Diller Eğitimi Anabilim Dalı İngiliz Dili Eğitimi Bilim Dalı doktora programı öğrencilerinden Dilara SOMUNCU'nun Doç. Dr. Nuray ALAGÖZLÜ danışmanlığında yürüttüğü "Dil Öğretmeni Bilginin Eğitimden Uygulamaya Gelişimi Üzerine Uzun Sıklıkta Bir Durum Çalışması (A Longitudinal Case Study of The Development of Language Teacher Cognition From Training to Practice" başlıklı tez çalışması, Üniversitemiz Senatosu Etik Komisyonunun 16 Ocak 2018 tarihinde yapmış olduğu toplantıda incelenmiş olup, etik açıdan uygun bulunmuştur.</p>	
Bilgilerinizi ve gereğini rica ederim.	
	 Prof. Dr. Rahime M. NOHUTCU Rektör a. Rektör Yardımcısı
Ek: Tutanak	
Hacettepe Üniversitesi Rektörlük - 06100 Sıhhiye-Ankara Telefon: 8 (312) 345 3001 - 3002 • Faks: 6 (312) 311 9960 E-posta: yurtdm@hacettepe.edu.tr • www.hacettepe.edu.tr	Agronomi Bilgi İşlem Zincirleri Akademi Ağs 8 (312) 345 3008

APPENDIX F: Declaration of Ethical Conduct

I hereby declare that...

- I have prepared this thesis in accordance with the thesis writing guidelines of the Graduate School of Educational Sciences of Hacettepe University;
- all information and documents in the thesis/dissertation have been obtained in accordance with academic regulations;
- all audio visual and written information and results have been presented in compliance with scientific and ethical standards;
- in case of using other people's work, related studies have been cited in accordance with scientific and ethical standards;
- all cited studies have been fully and decently referenced and included in the list of References;
- I did not do any distortion and/or manipulation on the data set,
- and **NO** part of this work was presented as a part of any other thesis study at this or any other university.

(09)/(07)/(2021)

(Signature)
Dilara SOMUNCU

APPENDIX-G: Thesis/Dissertation Originality Report

09/07/2021

HACETTEPE UNIVERSITY
Graduate School of Educational Sciences
To The Department of Foreign Language Education

Thesis Title: A CASE STUDY ON PRE-SERVICE ENGLISH TEACHERS' FORMATIVE ASSESSMENT TEACHER COGNITION

The whole thesis that includes the *title page, introduction, main chapters, conclusions and bibliography section* is checked by using **Turnitin** plagiarism detection software take into the consideration requested filtering options. According to the originality report obtained data are as below.

Time Submitted	Page Count	Character Count	Date of Thesis Defence	Similarity Index	Submission ID
09/07/2021	339	520.750	30/06/2021	16%	1617467227

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1. Bibliography excluded
2. Quotes included
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I declare that I have carefully read Hacettepe University Graduate School of Educational Sciences Guidelines for Obtaining and Using Thesis Originality Reports; that according to the maximum similarity index values specified in the Guidelines, my thesis does not include any form of plagiarism; that in any future detection of possible infringement of the regulations I accept all legal responsibility; and that all the information I have provided is correct to the best of my knowledge.

I respectfully submit this for approval.

Name Lastname: Dilara Somuncu

Student No.: N15141953

Department: Foreign Language Education

Program: English Language Teaching

Status: Masters Ph.D. Integrated Ph.D.

Signature

ADVISOR APPROVAL

APPROVED
(Prof. Dr. Nuray ALAGÖZLÜ)

APPENDIX-H: Yayınlama ve Fikrî Mülkiyet Hakları Beyanı

Enstitü tarafından onaylanan lisansüstü tezimin/raporumun tamamını veya herhangi bir kısmını, basılı (kâğıt) ve elektronik formatta arşivleme ve aşağıda verilen koşullarla kullanıma açma iznini Hacettepe Üniversitesine verdiğimi bildiririm. Bu izinle Üniversiteye verilen kullanım hakları dışındaki tüm fikri mülkiyet haklarım bende kalacak, tezimin tamamının ya da bir bölümünün gelecekteki çalışmalarda (makale, kitap, lisans ve patent vb.) kullanım hakları bana ait olacaktır.

Tezin kendi orijinal çalışmam olduğunu, başkalarının haklarını ihlal etmediğimi ve tezimin tek yetkili sahibi olduğumu beyan ve taahhüt ederim. Tezimde yer alan telif hakkı bulunan ve sahiplerinden yazılı izin alınarak kullanılması zorunlu metinlerin yazılı izin alınarak kullandığımı ve istenildiğinde suretlerini Üniversiteye teslim etmeyi taahhüt ederim.

Yükseköğretim Kurulu tarafından yayınlanan "**Lisansüstü Tezlerin Elektronik Ortamda Toplanması, Düzenlenmesi ve Erişime Açılmasına İlişkin Yönerge**" kapsamında tezim aşağıda belirtilen koşullar haricince YÖK Ulusal Tez Merkezi / H.Ü. Kütüphaneleri Açık Erişim Sisteminde erişime açılır.

- o Enstitü/Fakülte yönetim kurulu kararı ile tezimin erişime açılması mezuniyet tarihinden itibaren 2 yıl ertelenmiştir. ⁽¹⁾
- o Enstitü/Fakülte yönetim kurulunun gerekçeli kararı ile tezimin erişime açılması mezuniyet tarihimden itibaren ... ay ertelenmiştir. ⁽²⁾
- o Tezimle ilgili gizlilik kararı verilmiştir. ⁽³⁾

09/07/2021

(imza)

Dilara SOMUNCU

"*Lisansüstü Tezlerin Elektronik Ortamda Toplanması, Düzenlenmesi ve Erişime Açılmasına İlişkin Yönerge*"

(1) *Madde 6.1. Lisansüstü teze ilgili patent başvurusu yapılması veya patent alma sürecinin devam etmesi durumunda, tez danışmanının önerisi ve enstitü anabilim dalının uygun görüşü üzerine enstitü veya fakülte yönetim kurulu iki yıl süre ile tezin erişime açılmasının ertelenmesine karar verebilir.*

(2) *Madde 6.2. Yeni teknik, materyal ve metotların kullanıldığı, henüz makaleye dönüşmemiş veya patent gibi yöntemlerle korunmamış ve internette paylaşılması durumunda 3. Şahıslara veya kurumlara haksız kazanç; imkânı oluşturabilecek bilgi ve bulguları içeren tezler hakkında tez danışmanının önerisi ve enstitü anabilim dalının uygun görüşü üzerine enstitü veya fakülte yönetim kurulunun gerekçeli kararı ile altı ayı aşmamak üzere tezin erişime açılması engellenebilir.*

(3) *Madde 7.1. Ulusal çıkarları veya güvenliği ilgilendiren, emniyet, istihbarat, savunma ve güvenlik, sağlık vb. konulara ilişkin lisansüstü tezlerde ilgili gizlilik kararı, tezin yapıldığı kurum tarafından verilir*. Kurum ve kuruluşlarla yapılan iş birliği protokolü çerçevesinde hazırlanan lisansüstü tezlere ilişkin gizlilik kararı ise, ilgili kurum ve kuruluşun önerisi ile enstitü veya fakültenin uygun görüşü üzerine üniversite yönetim kurulu tarafından verilir. Gizlilik kararı verilen tezler Yüksek Öğretim Kuruluna bildirilir.*

Madde 7.2. Gizlilik kararı verilen tezler gizlilik süresince enstitü veya fakülte tarafından gizlilik kuralları çerçevesinde muhafaza edilir, gizlilik kararının kaldırılması halinde Tez Otomasyon Sistemine yüklenir

** Tez danışmanının önerisi ve enstitü anabilim dalının uygun görüşü üzerine enstitü veya fakülte yönetim kurulu tarafından karar verilir.*

