



Received: 18 October 2016
Accepted: 29 January 2017
Published: 16 February 2017

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TEACHER EDUCATION & DEVELOPMENT | RESEARCH ARTICLE

Re-defining language teacher cognition through a data-driven model: The case of three EFL teachers[†]

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Abstract: This study examined the main sources of the participant English as a foreign language (EFL) teachers' cognitions, their classroom practices and the impact of institutional context on these practices. The participants included three Turkish EFL instructors working at English preparatory programs at university level. The data were collected through three semi-structured interviews, twelve hours of classroom observations with follow-up stimulated recall interviews, and reflective journal entries. To analyse the data, grounded theory design was used as a systematic data analysis process. The findings showed that prior language learning experiences, the pre-service education, the years spent as a novice teacher, institutional atmosphere, experienced colleagues in the past and all teaching experiences were the main sources of their cognition on language teaching and their cognitions were also the origin of their classroom practices. The learner profile, institutional factors including the organizational atmosphere, testing and curriculum policies, and the participants' improvisational teaching acts were the other factors shaping their practices. Finally, the study puts forward a language teacher cognition model, Clusters of Language Teacher Cognition, a figurative conceptualization which would guide researchers for further studies and policy-makers for designing the learning-to-teach processes of teachers.

Subjects: Education; Educational Research; Education Studies; Teachers & Teacher Education

Keywords: language teacher cognition; EFL teachers; case study; in-service teachers

1. Introduction

With the emergence of significant realizations towards the early 1980s focusing on teachers' learning-to-teach processes, researchers' main focus dramatically turned to how teachers learnt what they knew rather than what they needed to know. Besides, the common view that successful

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PUBLIC INTEREST STATEMENT

How do language teachers learn to teach a language? What are the factors influential on their learning-to-teach process during their entire career? These questions have long been the focus of many scholars in the field of second language teacher education and they are still at the heart of discussion. Within an in-depth perspective examining three cases, this study aims to give answers to those questions by propounding a data-driven language teacher cognition model which presents a figurative conceptualization of the participants' learning-to-teach processes.

outcomes of teaching highly depended on teachers' being well-trained to apply language teaching theories and methods was superseded by the view of teaching as a multifaceted profession. In this sense, the ones involved in this field were occupied with the questions on what teachers actually knew, how they gained and accumulated this knowledge and what kind of a relationship this knowledge and teachers' practice had. This increasing recognition regarding teachers and the teaching itself led to the emergence of a new research orientation, language teacher cognition, which aimed to investigate "what language teachers think, know and believe and of its relationship to teachers' classroom practices" (Borg, 2006, p. 1).

During 1990s, research on language teacher cognition blossomed based on the idea that it was not possible to fully understand teachers and teaching without focusing on their beliefs, thought and knowledge that informed their practice (Borg, 2009). Much of this research (please see Borg, 2003 for a detailed review) aimed to investigate the knowledge base of language teachers with a special emphasis on its relationship with cognitive processes and classroom practices. It is an undeniable fact that this research has broadened the perspectives of both scholars and practitioners and has served to the understanding of teachers' mental lives and their learning-to-teach processes significantly. On the other hand, as Borg (2003) stated in his seminal review, these studies created a kind of terminological variability and has led to misconceptions and overlapping in the field.

In spite of this, language teacher cognition and language teachers' knowledge base are still popular research areas in 2000s for the scholars in the field. Many researchers (e.g. Akbari & Tajik, 2009; Johnston & Goettsch, 2000; Mullock, 2006) aimed to investigate this issue through replicating previous studies conducted in 1990s, but how language teachers learn to teach and the sources of their knowledge base and practices are still at the heart of discussion.

In language teacher cognition research, much effort has been paid on studying the cognition of pre-service teachers or ESL teachers and little is known regarding the practices and cognitions of EFL in-service teachers in international contexts where languages are taught by non-native teachers (Borg, 2009). In that sense, there is a paucity of research investigating the cognition of in-service EFL teachers with a broader focus and studies that would conceptualize their cognition are urgently needed.

Another issue which needs a greater attention is the role of contextual factors and classroom practices on language teachers' cognition. According to Burns (1996), contextual factors may have facilitative or hindering effects on teachers' decision-making processes, but there has been little attempt to explore this relationship. Furthermore, a bulk of research (Bailey, 1996; Breen, Hird, Milton, Oliver, & Thwaite, 2001; Golombek, 1998) revealed that language teachers' cognition and their practices are mutually informing. For these reasons, research that would draw on classroom practices of teachers and contextual factors would remarkably contribute to our understanding of language teacher cognition.

More importantly, as Kubanyiova and Feryok (2015, p. 1) stated, the domain of language teacher cognition is shaped by collective research efforts and their critical insights, but it has shown a limited progress in answering several question. Thus, though there has been a recent and pioneering attempt in the special issue of *The Modern Language Journal* with an intend to redraw the boundaries of language teacher cognition, the term still calls for re-definition (Golombek, 2015) and the aforementioned drawback related to terminological variability in language teacher cognition research is still one of the primary issues to be figured out. As Borg (2003) states below, there is a need for a unifying framework which explains these constructs more holistically.

The body of work is characterized by conceptual, terminological and definitional variability. Though understandable during the decade of change in this field research, the emergence of unifying, rather than disparate, frameworks for understanding language teachers' cognitions and practices would seem to be an appropriate goal in this domain of research. (p. 98)

Following a hermeneutic interpretive approach, this study aims to examine the cognition of in-service EFL teachers in Turkish university context with a broader perspective. A special focus is given on how their language teacher cognition is formed, the characteristics of their classroom practices that they utilize in their classrooms and the role of institutional context that has an impact on their classroom practices. The main goal is to reach a unifying framework that will be helpful to conceptualize the language teacher cognition of EFL teachers. The following research questions are addressed throughout the study:

- (1) What are the main sources of the participant EFL teachers' language teacher cognition?
- (2) What are the characteristics of their classroom practices?
- (3) What institutional factors influence the teachers' classroom practices?
- (4) How are language teacher cognition, classroom practices and institutional context interconnected?

2. Methodology

2.1. Research design

Within an interpretive hermeneutic research paradigm, which examines the phenomena from the perspectives of participants and focuses on what they think and how they understand the context they work in, this study was based on a qualitative design examining multiple cases through a rich repertoire of data collection. According to Yin (1994, p. 23), case studies “investigate 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”. According to Creswell (2012), in multiple case studies, the researcher aims to provide insight into an issue through describing and comparing multiple cases with the help of various forms of data collection tools. He further asserts that providing such an in-depth perspective into an issue could be achieved via in-depth focus on a few cases. Parallel to this, the participant teachers in this study were examined with an in-depth focus within the scope of the research questions in their real context in order to provide insight to their cognitions, classroom practices and institutional context.

2.2. Participants

The study employed purposeful sampling in which the researcher intentionally chose individuals who were believed to be “information rich” (Patton, 1990, p. 169). In determining the participant individuals, the researcher followed concept sampling, “which is a purposeful sampling strategy in which the researcher samples individuals because they can help the researcher generate or discover a theory or specific concepts” (Creswell, 2012, p. 208), based on some specific pre-determined criteria (Patton, 1990) such as being the graduate of an English language teaching department, having at least five years of language teaching experience, teaching full-time at an English preparatory program of a state university, having at least 15 h of weekly course load and willing to participate eagerly and voluntarily. Based on these criteria, three participants were determined from different universities. At the time of the study, they were working at the English preparatory programs in which an intensive language teaching program was presented to students in their first year at university with a course-load of weekly 20–25 h. The participants were described in detail below with their pseudonyms to have a better understanding of them (Table 1).

2.3. Data collection

The multiple sources of data in this study included semi-structured interviews, classroom observations, stimulated recall interviews, reflective journals and document analysis. The foci of these data collection tools are presented in Table 2.

The data were collected during the spring semester of 2014–2015 academic year, and this intensive process lasted for five months. First of all, the researcher got all the necessary permissions from the ethics committee, the participants and their students via consent forms. Then, the data

Table 1. Information about the participants

Eda	Mert	Zeynep
<ul style="list-style-type: none"> • Eda was a 30-year-old female teacher who had been working in the program for 6 years but has been teaching English for 8 years • She previously taught in primary and secondary school contexts. She held an MA in ELT • During the data collection process, she was teaching elementary students for 21 h weekly • Though she was in the testing office of her institution last year, she had no office duty this year • She had been to England once for a teacher training course for a couple of weeks 	<ul style="list-style-type: none"> • Mert had been teaching English for 8 years. He taught for one year in a private school in his hometown when he graduated from university • After that, he started to work in his current institution and had been there for about 5 years. He did not have a post-graduate study • He is teaching intermediate students in the program. He had sixteen hours of teaching every week and was also in the testing office of the program • He loved travelling and had been to many countries in Europe including Germany, France, Austria and England 	<ul style="list-style-type: none"> • Zeynep was the most experienced teacher among the participants • She had been teaching English for 10 years and had spent all these years in the department she was currently working in • She held an MA degree in educational sciences which she had completed about 7 years ago • She was teaching pre-intermediate students for twenty-two hours weekly and did not have office duties in the program • She had been abroad only once, the USA, to make an oral presentation in a conference

Table 2. Foci of data collection instruments

Data collection instrument	The focus
1st interview	Detailed background information regarding the previous language learning and teaching experiences
2nd interview	Detailed information regarding the teachers' classroom practices based on the preliminary findings from the first two classroom observations
3rd interview	Detailed information on the teachers' language teaching philosophies based on all classroom observations
Classroom observations	The participant teachers' classroom practices
Stimulated recall interviews	The teachers' verbal narrations on their teaching acts in classroom
Weekly reflection reports	The teachers' classroom practices throughout the semester

collection process was followed based on the schedule prepared according to the programs of the participants. The data were collected through three semi-structured interviews (conducted at the beginning, in the middle and at the end of the term), twelve hours of classroom observations with follow-up stimulated recall interviews (4 h of observation for each participants), and reflective journal entries. All the interviews during the data collection process were conducted in the mother tongue of the participants so that they could express themselves comfortably and provide better insight for the points being examined and the quotations used in the findings section were translated literally.

2.4. Data analysis: A grounded theory approach

Almost all the studies in the literature that aimed to explore language teacher cognition were conducted in ESL settings (please see Borg, 2003; Wright, 2010 for a detailed review) and, to the best knowledge of the researcher, none of them focused on the issue in connection with teachers' classroom practices and the effect of institutional context. For these reasons, EFL teachers' cognition, their classroom practices and the effect of institutional context on them are new areas to be explored. Thus, this study followed the grounded theory approach, the reasons of which are parallel with the words by Creswell (2012).

Grounded theory generates a theory when existing theories do not address your problem or the participants that you plan to study. Because a theory is grounded in the data, it provides a better explanation than a theory borrowed “off the shelf”, because it fits the situation, actually works in practice, is sensitive to individuals in a setting and may represent all of the complexities actually found in the process. (p. 423)

Though grounded theory may be applied to a whole research process including sampling, data collection and data analysis, many scholars in the field like Dornyei (2007) believe that it is a specific mode of data analysis. In line with this, this study used grounded theory as a systematic data analysis design to generate a theoretical framework which aimed to discover a broad conceptual level about the phenomena under investigation. During the data analysis process, this study followed two basic criteria stated by Dornyei (2007) that made the study a grounded theory: (a) the analysis followed the specific sequential coding system, (b) the analysis produced some theory outlining a tentative model of framework as an outcome of the investigation.

2.4.1. Coding in grounded theory

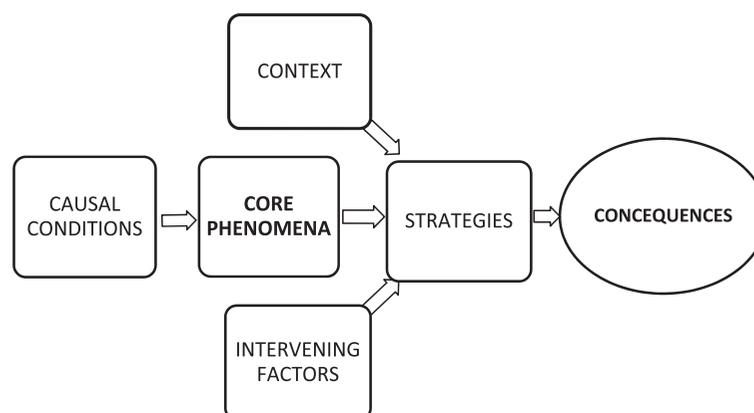
Grounded theory has a multilevel data analysis process in which the researcher starts with some basic descriptions (open coding), goes on with a conceptual ordering (axial coding) and finalizes with theorization (selective coding) (Patton, 1990). All these processes are shaped with detailed sets of coding processes that occur recursively in a cyclical way.

The first step of this coding process was open coding in the current study. In this process, the researcher broke the data into chunks and assigned them initial category labels. At the end of open coding, the researcher identified themes to serve as categories in the next step. Since this phase of coding process was similar to qualitative content analysis, the scheme of Creswell (2012) which includes transcription, reading through the data, coding and reaching themes was used in this stage.

The second step was axial coding in which “the researcher makes connections between categories, thereby attempting to integrate them and group them into more encompassing concepts that subsume several subcategories” (Dörnyei, 2007, p. 261). During axial coding, the researcher selected a core category among open coding categories based on the criteria stated by Strauss and Corbin (1998) considering its frequency in the data and its relevance to other categories, and related other categories to it under the headings of causal conditions, context, intervening conditions, strategies and consequences. In order to systematize this process, the researcher followed the axial coding paradigm presented by Strauss and Corbin (1998) and conducted the same process for two constructs of the study—language teacher cognition and classroom practices—separately (Figure 1).

In selective coding, the last phase of the process, the researcher integrated and refined the theory from the interrelationship among the categories derived from the axial coding schemes of language teacher cognition and classroom practices (Strauss & Corbin, 1998). A new theoretical insight was

Figure 1. Axial coding scheme.



generated on the sources and characteristics of each construct and their interconnectedness. At the end, the researcher proposed a framework that would describe the cognition of the participant teachers with regard to their classroom practices and institutional context.

2.4.2. Key issues in data analysis

Data analysis in a grounded theory design is a multilevel process in which systematization plays a crucial role. To ensure this systematic process, which makes a research study “grounded theory”, there were some important issues that were followed and used by the researcher.

First of all, the process moved cyclically and recursively. Creswell (2012) calls this process as an emergent design and states that “the researcher collects data, analyzes it immediately and bases the decision about what data to collect next This process waves back and forth between data collection and analysis and it continues until the researcher reaches saturation of a category” (p. 433).

Generation of categories was based on comparing the sub-elements among each other. Till the raw data was formed into categories, the researcher constantly compared codes to codes and themes to themes so that the final categories in the data were grounded. This helped the researcher reduce redundancy and have evidence for the development of categories. All this process was assisted by a colleague, a PhD candidate in educational sciences, through cross-checking to promote inter-coding.

2.5. Trustworthiness

In qualitative studies, the issues of validity and reliability were often referred as trustworthiness by Lincoln and Guba (1985) and they proposed several procedures, which were also followed by the current study, to increase the trustworthiness of such studies. First of all, the data in this study were triangulated by using multiple forms of data collection tools. Secondly, a colleague with a PhD in educational sciences checked almost 25% of transcriptions to detect any missing points, and reviewed the preliminary codes and the emerging themes at the end of the study. Finally, as for member-checking, the researcher also asked the participants to review and comment on the transcriptions, observation records and analysis of their own cases. Due to the workload of the participants, member-checking was employed in one interview, two stimulated recalls and final analysis reports. Combined with the memos during the analysis, the feedback provided by the participants for those parts were quite helpful in data analysis process.

3. Findings

3.1. The case of Eda

The findings in Eda’s narrations demonstrated that her language learning experiences in the past, the pre-service education she had at university, her language teaching experiences as a novice teacher and as an experienced one were influential on the formation of her cognition as a language teacher. It was understood from her utterances that during the years she spent as a language learner, she had had several experiences which had made her construct initial conceptualizations on how to be a good or a bad teacher. The teacher she had in the eighth grade was a negative model for her:

Especially the one in the eighth grade was terrible. We had a book and she strictly followed it. The lessons were monotonous; we were just doing the exercises one by one and writing down the things on the board. Everything was Turkish and we had no speaking activities. Just like learning Maths or Geography. (3rd interview)

On the other hand, the teachers she had had in the first year of her high school were very impressive for her. She expressed that their attitudes towards students had been quite affectionate, they were always cheerful, they approached students in a very friendly manner and they were always so kind in correcting students’ mistakes. She also stated that she had always admired those teachers in that time (1st interview). During her pre-service education, courses related with teaching methodologies,

teacher educators she had and her practice teaching experiences had a significant effect on her development as a teacher candidate. During the interviews, she specifically highlighted how her practicum experience and the mentor she had were beneficial for her.

I had a quite beneficial practicum process during the program My mentor was very important for me. She was a very idealist teacher. She always had a logical explanation for anything she did in class. I can say that my teaching style has some traces of what I learnt from that teacher. (3rd interview)

After university, she reported that she experienced a reality shock and absolute disappointment when she started to teach as a novice teacher in a village school due to bad conditions there. After a while, she started to teach at university context and she stated that most of her classroom teaching there functioned as a trial and error mechanism.

I was doing whatever I learnt at university and nothing else but it was, how can I say, trial and error in a way. For example, I started every lesson with a warm-up. If it worked, I said “Ok, I should use warm-up”, or I explained a grammatical point in English, if it worked, I went on, but if my students looked confused, I said “Himm, I should use Turkish here”. I can say that everything I did in class on those days went on in that way. (1st interview)

During those years, she stated that she changed some of her habits and principles as a teacher due to this trial and error process. Finally, it was also understood that her further teaching experiences in her career were also influential on her development and the knowledge of teaching she currently had was, in a way, shaped by her experiences. Moreover, she had many opportunities to evaluate the value and effectiveness of her teaching principles, gave up doing some of them or embraced the one she believed she would never do. To sum up, in her own words, “Experience made me the teacher I am now” (3rd interview).

As for the classroom practices, all the observations conducted on Eda’s class hours demonstrated that her teaching acts during class hours were mainly shaped by her language teaching philosophy, which she constructed through all her language-related experiences as previously mentioned. Most of her instructional decisions were made based on a pedagogical background which was closely inter-related with the elements that formed her language teacher cognition. For instance, when she was asked about the background of her teaching acts, she presented justifications from her experiences as a language learner (1st SR interview), methodology courses from her pre-service years (Eda - reflection 6) or from her teaching experiences as a novice teacher (3rd SR interview). In other words, it was very clear that she benefited from all her experiences and used them in harmony rather than sticking into one or making one of them dominant in her classroom.

Other factors which significantly influenced her classroom implications were found to be the learners and her improvisational decisions. It was observed that learners were at the centre of all her practices. She had a firm relationship with her students but she paid a special attention to their comfort, welfare and feelings. Her preferences on classroom design (1st interview), oral corrective feedback practices (2nd interview), adapting instructional activities (1st reflection report) and code-switching to Turkish (3rd SR interview) were all made considering the profile and welfare of her students. She not only adapted most of her classroom implications and teaching activities taking her learners’ profiles into account but also embraced a perspective which prioritized the feelings of her students. It was also found that she had some stable approaches like the issues of affective filter and corrective feedback, but she could change and adapt teaching activities based on the learner profile.

In addition to this, she made frequent improvisations while teaching in the observed sessions. At first, they were regarded as natural by the researcher because their integration to the flow of the session was quite successful. However, the number of them was so much that this situation was asked to her in one of the interviews and her utterances were illustrative.

To be honest, I wasn't aware of it before you talked about it in the first SR interview. In fact, it is not possible to be aware of it because you feel as if they are the actual and planned parts of your lesson. I mean, you never say to yourself after the lesson "I didn't plan this but I did it". They occur and the lesson finishes. I think they are quite natural because you sometimes adapt your practices according to the flow of the lesson and these adaptations might require some improvisation (smiling). (2nd interview)

Finally it was reported that the issue of testing and the existence of a pre-determined curriculum were the institutional factors that had an effect on Eda's classroom practices. According to her, testing was an important element for students in this process and the importance her students gave to testing made it a significant element of her classroom practices. During class sessions, she was observed to be making constant reminders on testing and to prepare materials in order to help students prepare for the exams. Although determining the content of her classroom teaching, the curriculum of her school was found to be indirectly affecting her classroom practices. She stated that she sometimes had to keep up with it and for this reason; she could not focus on several subjects in detail or make necessary revisions. This was disadvantageous for students and sometimes put her in a difficult situation. She also expressed that being guided by a pre-determined curriculum was not a problem for her but she would have felt better if she had had more freedom in her classroom implications.

3.2. The case of Mert

Based on his narrations during the data collection process, it was revealed that Mert's prior language learning experiences with his teachers, the pre-service education he received and all his experiences as a professional teacher were the factors that were influential on the formation of his language teacher cognition. At first, he highlighted the fact that his teachers during the year he spent in an English preparatory program in secondary school were quite influential on him. His utterances during the first interview illustrate this issue:

Everything they did was amazing. I mean their activities, games, books, material were very different and interesting for us because we were taught very traditionally in primary school and after that, it was like a revolution. We were singing songs and playing games during class hours. I remember such lessons made those teachers very valuable for us. (1st interview)

His English teachers in the past were so influential in his career that he learnt a lot of things from them on how to teach English effectively and his current practices had the traces of them. For instance, he played a game with his students in the fourth observed session to revise some previously thought vocabulary items. During the game, a student voluntarily came to the board and sat on his chair looking at her friends but couldn't see the board. Mert wrote a new vocabulary item on the board in each case and other students tried to explain the word in English to the student sitting on the chair. During the fourth SR, it was seen that the origins of the activity were based on his school years:

Canan teacher (his primary school teacher) was doing this activity and I always looked forward to it because it was very funny. I adapted it a little bit; I do not form groups to save time and give some extra performance grades to the students coming to the board. I think it is very useful to revise the words I taught in previous weeks and I can use it with any group of learners. (4th SR interview)

In terms of his pre-service education, Mert reported that some of her principles as a teacher were completely based on what he had learnt in the program. For instance, the background of his grammar teaching was based on the methodology courses he had taken in the program (2nd SR interview), or his constantly use of the mother tongue was a reflection of his belief in the comprehensible input theory which he had learnt in the program as well (2nd interview). However, he also stated that in spite of all its benefits, the program could have provided more opportunities for him to make more

practice teaching. He experienced the insufficiency of his practical knowledge when he started teaching English as a real professional teacher, which he called as a bigger shock than an ice-bucket challenge. His utterances below, from a number of data collection times, reveals the fact that he was unable to put all the theory into practice in a real classroom atmosphere.

I knew a lot about teaching but I lacked the ability to put them into practice. (1st interview)

It was not as easy as we observed in the practicum and school experience at university. (1st interview)

I felt I was learning everything from the beginning by experiencing them. (3rd interview)

I couldn't do anything in a natural way. Everything was too artificial. (3rd interview)

I felt so stupid when I was not able to cut a paper in the shape of a baby. (1st interview)

Both negative and positive experiences he had as a novice teacher developed him in such a degree that he felt as if he was learning how to teach from the beginning. Besides his novice years, the colleagues he had in his career contributed a lot to his development as a language teacher. During the interviews, Mert emphasized the fact that he had learnt a lot from his more experienced colleagues and his narrations on this issue revealed that the colleagues he had both in his current and previous institutions were quite helpful in his gaining appropriate pedagogical skills and adapting the workplace he worked in (1st interview). In addition, Mert also highlighted that his teaching experiences during the years contributed to his development a lot. His utterances in the third interview revealed the importance of teaching experiences in his career.

I cannot deny the fact that I learnt a lot about language teaching at university but as I said before, they were too theoretical for me once I started to teach as a real teacher. For this reason, I can clearly say that I learnt to be a teacher, in a real sense, through my experiences and in time working in different contexts and teaching different students. Now, I have my own teaching style, my own principles and my own behaviours, and all of them are the products of my experiences as a teacher. (3rd interview)

At the end of observations of his classroom practices, it was seen that Mert had constructed his own language teaching principles based on his experiences in the past, he was quite sure and persistent on the applications of them and he even thought them as the best ways of teaching in classroom atmosphere. His utterances during the interviews and in his reflection reports showed that the principles were the products of all his experiences from the years as a learner, the pre-service program and teaching experiences. These principles were quite visible in every aspect of his classroom practices from teaching language skills to classroom management and seemed to be shaping all his teaching acts. On the other hand, the other factor that was at the centre of his classroom implementations was the learners. He paid great attention to the welfare of his students and tried hard to create a classroom atmosphere in which students would feel comfortable. According to him, his students felt themselves like at home in his classroom (1st interview). He took their needs and interests into consideration while conducting lessons and organizing activities and he also made a big effort to keep their attention in a high level.

Student interest and attention are very problematic issues for a teacher these days and as a teacher, I believe that any activity you conduct in class or any material that you use should appeal to students' interests. Otherwise, it is very difficult for an activity or material to reach its goal. For this reason, I do my best to attract my students' attention while I am teaching. (2nd SR interview)

In addition to these efforts, it was also observed that Mert made some improvisations while teaching, which he had not planned before the session, in order to attract his students' attention and give some extra information about the topic. For instance, in the third session, he was going to cover a

short text about the city of Amsterdam. While he was giving a brief information about the city, he stood up, turned on the computer and showed some pictures of Amsterdam to his students in three or four minutes. He reported after the session that he had not planned showing these pictures to the students. However, he had observed that the students were so reluctant and sleepy so he wanted to show those pictures to get their attention (3rd SR interview).

Finally, the institutional context Mert was working in was found to be partly but significantly influential on his classroom teaching. The curriculum policies in the department made Mert a very planned and organized teacher who was very conscious of the planning of his classroom practices and happy with the curricular implications there. However, he also admitted that such a standardized curriculum policy sometimes put him in a difficult situation and he had to teach several points or perform activities which he would not do. He thought that it would have been better if the policies had given him more chance to prefer his own techniques and show his own creativeness. In addition to this, Mert praised the organizational atmosphere in the institution which was administered smoothly and encouraged all teachers to collaborate and share ideas. During the data collection process, Mert expressed that he had learnt a lot from this collaborative atmosphere and this was quite clear in his utterances and classroom observations. Finally, it was seen that testing policies partly influenced his classroom decisions. In general, he believed that he would not do specific changes or arrangements for testing in his classroom teaching but his observed actual practices showed that he kept the issue of testing in his mind and made small adaptations in his classroom teaching when necessary.

3.3. The case of Zeynep

The findings derived from her data put forward that Zeynep's language learning experiences, the pre-service education and her language teaching experiences starting from her novice years contributed to the formation of her language teacher cognition. During the years as a learner, Zeynep had several teachers whose practices and perspectives on language teaching had traces on her teaching cognition. Her language learning process in these years was so enjoyable that she formed certain habits which made her a successful language learner.

For example, I was keeping a separate vocabulary notebook and I was writing the phonetics, parts of speech, English and Turkish definitions and an example sentence. That was my favourite and improved my English a lot. (1st interview)

In all her reflection reports, it was clear that her habits as learner influenced her teaching practices as well. She wanted her students to keep a vocabulary notebook, controlled them every week and graded the quality and tidiness of them. As it was previously mentioned, she believed in the effectiveness of this activity because she did the same thing when she was a learner and benefited a lot (Zeynep – reflection1).

Her narrations on the pre-service program revealed that she was a successful teacher candidate in these years. It was also driven from her data that teacher educators in the department, methodology courses and her practice teaching experiences helped her develop as a prospective teacher and significantly contributed to her cognition as an EFL teacher. For instance, in the first interview, she mentioned one of the teacher educators in the program and told how she admired him as teacher model.

He had been a teacher in a state school for about six or seven years and then he started to work as an instructor in our department. For this reason, he knew a lot about teaching in a real classroom atmosphere He prepared some tasks and we did them during and after our observations. Then, we had discussion sessions in our lessons based on these tasks. His narrations, memories and feedback were enlightening for us and I remember we were taking notes on whatever he was saying. (3rd interview)

When Zeynep started working as a teacher, she had a process in which she had to revise most of her knowledge of language teaching. According to her, her pre-service education was mostly theoretical and the opportunities provided for her were not enough to practice their teaching skills and to see the realities of a classroom.

Of course, like any teacher, these years were also challenging for me because, let teaching aside, you try to establish yourself as a teacher in the eyes of students and struggle, yes struggle, to be their teacher. In terms of teaching, you start as an idealist teacher and try to apply everything you know and expect them to go smoothly. However, that is not the case. I remember most of my ideas changed during these years and I had to generate new ones which were more practical for me. (3rd interview)

Spending her novice years as a changing process, she began to have routines as a teacher as she got more experienced. In general, Zeynep underlined the fact that getting experienced influenced her in two main points. The first one was that it made her a more self-confident teacher who was sure about her classroom implications, conducted her classes smoothly, had a good stance while teaching, and managed any potential problems in class. On the other hand, there were several points which she called as the negative effect of experience. According to her, she began to be a more routine, less idealist, boring and ordinary teacher who gave up applying creative activities, taught the same things in the same way every year, stayed in the constraints of the institution and became a predictable teacher regarding her reactions, opinions and practices (1st interview).

Like the other participants, Zeynep was also observed to have constructed her own language teaching philosophy based on her all language-related experiences in the past and it was possible to see the impact of these experiences she mentioned in any aspect of her classroom teaching. In other words, her unique philosophy of language teaching was the main source behind her classroom implications. Data on her classroom teaching also revealed that her practices were mainly shaped by the learner profile. In general, Zeynep reported that she had to decrease the quality of her language teaching practices and simplify everything she did in class due to the low level of her students. For instance, she explained the grammar topics in Turkish most of the time though she was not in favour of it (1st SR interview), she had to transform a listening activity to a reading one due to the difficulty of the text (3rd SR interview) and gave most of her worksheets as in-class activity which she used to give as homework (4th reflection report). Many other situations like those in her classes revealed how the student profile was influential on Zeynep's classroom practices and implementations

Finally, the results showed that there were several serious problems in Zeynep's institutional context and these problems influenced her self-perception, mood and classroom practices negatively. Zeynep expressed that the organizational atmosphere in her workplace was quite bad in terms of administration and relationship with other colleagues, which created a very easygoing and undisciplined environment. Moreover, her narrations revealed that there were not any curriculum and testing policies or offices in her school and the language teaching process worked unsystematically. This situation compelled her to conduct her lessons totally based on the course-book and this situation made her quite unhappy in her workplace. For this reason, it was concluded that the institutional context had a seriously negative impact on Zeynep as an EFL teacher.

3.4. The summary of the cases

In order to present the findings derived from the cross-cases comparisons in a more organized way, the following table shows the elements which played influential roles on the participants' language teacher cognition and the formation of their classroom practices (Table 3).

Table 3. The summary of the cases

The case of Eda	The case of Mert	The case of Zeynep
<i>Main sources language teacher cognition</i>	<i>Main sources language teacher cognition</i>	<i>Main sources language teacher cognition</i>
• Language learning experiences	• Language learning experiences	• Language learning experiences
<i>Language learning habits</i>		<i>Enjoying language learning and forming habits</i>
<i>Teachers in the past</i>	<i>Teachers in the past</i>	<i>Teachers in the past</i>
• Pre-service education	• Pre-service education	• Pre-service education
<i>Teacher educators</i>		<i>Methodology courses</i>
<i>Methodology courses</i>	<i>Methodology courses</i>	<i>Teacher educators</i>
<i>The practicum</i>	<i>The practicum</i>	<i>The practicum</i>
• Experiences as a teacher	• Experiences as a teacher	• Experiences as a teacher
<i>Being a novice teacher</i>	<i>Being a novice teacher</i>	<i>Being a novice teacher</i>
<i>More teaching experience</i>	<i>More teaching experience</i>	<i>More teaching experience</i>
	<i>Colleagues in the past</i>	
<i>Eda's classroom practices</i>	<i>Mert's classroom practices</i>	<i>Zeynep's classroom practices</i>
• Eda's language teaching philosophy • Improvisational teaching • Learners	• Learners • Mert's language teaching principles	• Learners • Zeynep's language teaching philosophy
<i>The impact of institutional factors</i>	<i>The impact of institutional factors</i>	<i>The impact of institutional factors</i>
• Testing policies • Curriculum policies	• The organizational atmosphere • Testing policies • Curriculum policies	• The organizational atmosphere • The lack of curriculum and testing policies

4. Discussion

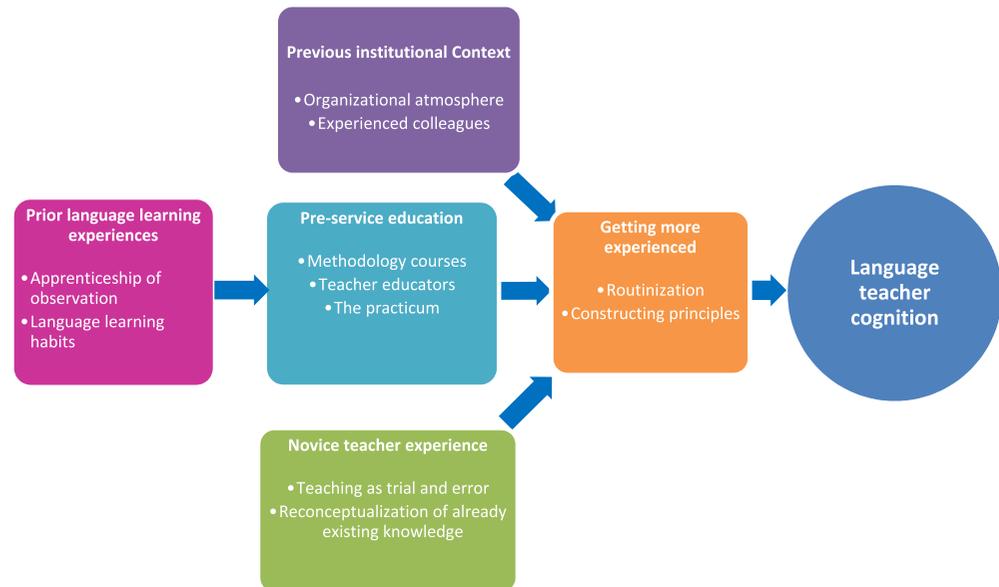
The study aimed to explore the main sources of the participant teachers' language teacher cognition, the characteristics of their classroom practices, the institutional factors that shaped their practices and how these three constructs were interconnected. The results regarding the foci were presented case by case in the previous section and this part discusses the findings derived from the cross-cases analysis of the data by providing the figures which are constructed based on this cross-cases analysis and describes the language teacher cognition of the participant teachers, the characteristics of their classroom practices and the impact of the institutional context on them. Finally, the chapter presents a model called Clusters of Language Teacher Cognition (CLTC) which demonstrates how the constructs are interconnected and shows the elements which the teachers have cognition about.

4.1. The participant EFL teachers' language teacher cognition

The first research question of this study investigated the main sources which contributed to the formation of the teachers' language teacher cognition. The results derived from the analysis of the cases demonstrate that, based on the grounded theory paradigm, they construct their cognition through a process which includes;

- (1) their prior language learning experiences—as causal conditions,
- (2) their pre-service education—as the core phenomenon,
- (3) previous institutional contexts—as the context,
- (4) their novice years as a teacher—as intervening conditions,
- (5) their teaching experiences—as strategies. At the end of this process, they gain language teacher cognition—as consequences—which forms the basis of all their language teaching activities. The scheme illustrating this process is shown in Figure 2.

Figure 2. Sources of the teachers' language teacher cognition.



The first factor that had an impact on the formation of the teachers' language teacher cognition was their very early language learning experiences. It was quite clear in the narrations that the teachers had constructed initial conceptualizations on how English should be taught or a good teacher should be based on their language learning habits and by observing their own teachers in the past. Eda's affectionate attitude towards students, Mert's admiring and embracing some of the techniques and behaviours of his prep-year teachers and Zeynep's advising her students to keep a vocabulary notebook as she did in the past are some of the examples clarifying the impact of their prior language learning experiences. In line with numerous studies (Bailey et al., 1996; Erkmen, 2014; Golombek, 1998; Hayes, 2008; Numrich, 1996), the impact of apprenticeship of observation (1975) and prior language learning experiences were noticeable in the formation of the teachers' language teacher cognition.

There are controversial arguments regarding its impact on teachers' learning-to-teach processes (Borg, 2003), but pre-service education was situated as the core phenomena of the scheme due to its high frequency in the data and relevance to other categories. Although they highlighted certain insufficiencies regarding the programs, the participants' frequent narrations regarding the several aspects of their pre-service education showed that it was at the centre of their language teacher cognition. Besides, methodology courses in the program, teacher educators and the practicum experience were reported to be the most influential factors in this process. For instance, some of Mert's language teaching principles were totally based on what he had learnt about language teaching during the program. Zeynep, on the other hand, reported that she always took some of the teacher educators in the program as models due to their personality as educators, constructive feedback and attitudes towards students and she still had their traces in her teaching style. As for the practicum experience, Eda said that she had felt as a real teacher for the first time and benefited from her mentor's feedback a lot during her practice teaching. In the light of the participants' experiences, the study supports the findings of some others conducted on certain aspects of pre-service education like the courses in the program (Chiang, 2008; Özmen, 2012; Seferoğlu, 2006) and the practice teaching (Gebhard, 2009), and puts forward that pre-service education, with all its sub-elements, has a central place in the formation of language teacher cognition.

Another important factor which was found to be quite influential on language teacher cognition was novice teacher experience. Parallel to the ones in the literature (Faez & Valeo, 2012; Kumazawa, 2013; Tsui, 2003) highlighting the importance of novice teacher experience, this study also prioritizes

the contribution of it to teachers' learning-to-teach processes based on the participants' narrations. Mert called this experience as "ice-bucket challenge" in which he had not been able to put his pre-service knowledge into practice and had extremely difficult times in real classroom atmosphere. Similarly, Eda referred to these times as a "reality shock" and had been disappointed when faced with the realities of school and classroom contexts. In other words, it was revealed that, in their novice years, the teachers (a) faced with the realities of classroom and school context, (b) were able to identify their weaknesses and strengths with their very first experiences, (c) had the opportunity to evaluate their already-existing knowledge of teaching through experimenting and trial and error, (d) and eventually reconceptualized and adapt this knowledge according to the requirements of their context. As Farrell (2009, p. 182) stated, "ideals that novice teachers may have formed during the teacher education programme are often replaced by the realities of the social and the political contexts of the school". This replacement and re-conceptualization result in experienced-driven teaching knowledge which makes a salient contribution to the teachers' cognition on how to be a teacher in a real context and teach a language there. In a way, their perceptions of preparedness as a teacher (Faez & Valeo, 2012) strengthen in those years.

It was also understood from Mert and Zeynep's utterances that their previous institutional contexts had also important roles in their development as a teacher. For Mert, his first year at the private school he had worked as an EFL teacher developed him professionally. He especially emphasized the role of more experienced colleagues and how they had been helpful to him when he had had problematic situations as a novice teacher. On the other hand, Zeynep had been influenced quite negatively from the atmosphere in her institution including the learner profile she had in her first year and the attitudes of her colleagues when she had started working as an EFL instructor. In line with Burns (1996) and Valencia (2009) who reported the noticeable impact of institutional elements on teachers' beliefs and practices, the study yielded important findings on the role of previous institutional contexts on the teachers' professional growth.

The crucial role of teaching experience on professional development and teacher expertise is a well-known fact (Tsui, 2009), and all the participants in this study emphasized the influence of their teaching experiences on their learning-to-teach process and professional development. Admitting that they had both negative and positive effects on her, Eda referred to her experiences as "they made me the teacher I am now". Parallel to her, the data of Mert also showed that he gained much of his skills and knowledge of teaching by doing or experiencing. For him, all kinds of experiences he had with different learner profiles and in different contexts shaped his profile as a teacher. On the other hand, Zeynep, who was negatively influenced by her experiences, turned to be a routine and predictable teacher, and at the end, her experiences made her gain several activities and implementations which she still used in her classes. Backing up the findings of the studies (Chou, 2003; Sun, 2012; Ulichny, 1996) which also put forward the significant impact of experience of teachers' beliefs and practices, the study also yielded the vital role of experience on the teachers' cognition about language teaching. It was clear that teachers began to construct their own teaching principles and philosophies as they got more experienced, which made them a more confident teacher having a better stance and being aware of what she/he practically did in classroom atmosphere. However, the years spent as a professional teacher might also make teachers predictable ones whose practices turned to be their routines and who lost their idealism each another day. The common point of all these inferences is that, whether negative or positive, teaching experiences lead to considerable changes and reformulations in language teachers' cognition.

Finally, when all the data of this study were examined, it was seen that each of the participants referred to a phenomenon, which included certain beliefs, knowledge and attitudes regarding language teaching, while talking about the sources of their teaching principles. Eda, for instance, constructed a philosophy which guided her classroom implementations, attitudes towards students and beliefs on how to teach a language. Mert, as a disciplined teacher, had very strict principles which he applied persistently and believed to be the best ways to teach a language and to be a good teacher. Though not being able to reflect into her classroom practices completely due to several reasons,

Zeynep was also observed to have a language teaching philosophy which she constructed through the years. Based on these findings, this study posits that the teachers constructed their cognition about language teaching through all their foreign-language-related experiences including their apprenticeship of observation, learning experiences as students, their pre-service education, previous institutional contexts, their novice years and other teaching experiences. Since these experiences were unique to individuals, their cognition was also unique for each of them.

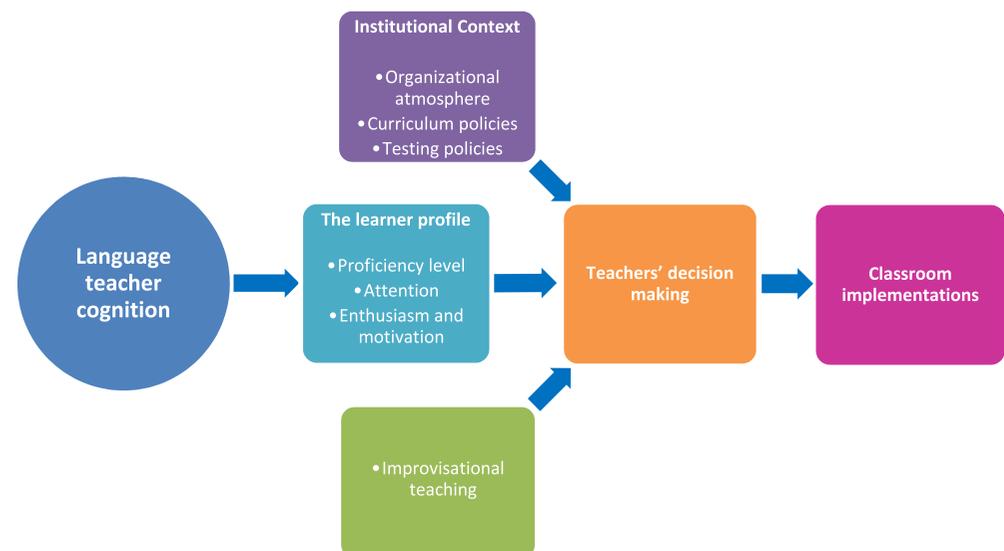
In second language teacher education (SLTE) literature, language teacher cognition is often-citedly defined as “what teachers know, think and believe and of its relationship to classroom practices” (Borg, 2006, p. 1). However, based on the unique experiences of the participant EFL teachers, this study posits that language teacher cognition is a broader phenomenon which refers to the accumulation of all language-teaching-related experiences that cover a process starting from very early language learning experiences to current language teaching practices rather than being what teachers simply know, believe and think about the act of language teaching. It covers all kinds of beliefs, aptitude, attitudes, learning habits, assumptions and conceptualizations which are related with language teaching itself and constructed in time throughout a developmental process.

4.2. The participant EFL teachers’ classroom practices

This study also aimed to identify the characteristics of the participant EFL teachers’ classroom practices and find out the factors which were influential on the shaping of them. The findings derived from semi-structured interviews, stimulated recalls (SR) and reflection reports show that the participants’ language teacher cognition, the learner profile, institutional factors, several intervening factors are influential on teachers’ decision-making, which, in the end, results in their classroom implementations. The axial coding scheme illustrating the formation of this construct is presented below in Figure 3.

The findings showed that the teachers’ language teacher cognitions that were developed through their lifelong experiences in language learning and teaching also served as a unique construct forming the source of their in-class decisions. For instance, it was clear in their data that Eda and Zeyep constantly referred to different experiences and times (apprenticeship of observation, pre-service education, previous teaching experiences etc.) in their learning-to-teach process as the reasons of their teaching acts. Similarly, Mert was observed to have his own language teaching principles and he reported to have formed these principles based on his apprenticeship of observation, educational career and teaching experiences, and he was quite persistent in the application of them. As Woods (1996) argued, language teachers had certain internal factors, composed of their professional life as

Figure 3. Formation of the teachers’ classroom practices.



a whole, which guided their classroom practices. Besides, Breen et al. (2001), tracking the classroom practices of 18 ESL teachers in Australian context, concluded that teachers realized certain principles through the application of certain sets of implications and all of these principles and implications were unique to individuals. In the same vein, this study yields that the origin of language teachers' classroom practices is not only the product of their previous teaching experiences or professional coursework but also the outcome of all other language-related-experiences.

The learner profile in the classrooms of the participant teachers was at the centre of their classroom practices and in-class decisions. During their classroom teaching, all the participants reported to have taken into account their students' affective features, proficiency levels, interests and comfort, and shaped most of their implications according to them. The importance of learners for teachers' classroom practises was also demonstrated by several studies in the literature. Mullock (2006) examined language teachers' instructional decisions to identify their foci using the framework of pedagogical thought units and it was revealed that students were the second most frequent reason behind teachers' instructional decisions. Bailey (1996), examining teachers' departures from their lesson plans, put forward that accommodating students' learning styles and promoting learner involvement were two main reasons for their departures. In line with these studies, the current study also highlighted the role of learners on the teachers' in-class practices as they were observed to create an appropriate atmosphere for their learner profile, prepare or adapt activities in order to appeal to learners' needs and interest.

Burns (1996) refers to institutional elements (curriculum, testing, atmosphere etc.) as institutional exigencies and their influence on teachers' classroom decisions was also supported by this study. For instance, Mert, as a teacher, clearly reflected the perspective of his institution with his disciplined and organized attitudes. On the other hand, Eda and Zeynep reported that they were sometimes unhappy with these institutional exigencies and they were noticeably influenced by the curriculum and testing policies of their institution, which always made them follow the curricular sequence strictly and take the content of the exams into account while teaching in classroom atmosphere. In other words, they experienced a kind of behavioural change in their practices due to their teaching context (Kang & Cheng, 2014) or their practices were influenced by exam-related expectations in their context (Nishino, 2012). In this sense, the elements in their institutions were found to have an influential role on the participants' practices.

Placed as the intervening factors in the scheme, improvisational acts of the teachers were quite influential on their classroom practices. Eda, for example, frequently made spontaneous decisions during her classroom teaching. Though she reported to have been unaware of doing these improvisations during the class hours, it was observed that she was very good at it and gave the impression that all these acts were like parts of her lesson plans. Mert was also observed to make spontaneous acts during his classroom teaching especially for his students' interest, needs and motivation. According to Richards (1998), teachers sometimes made on-the-spot modifications on their practices to increase learners' participation or interest. Bailey (1996) maintained that promoting students' involvement and serving the common good were the main reasons of teachers' improvisational teaching. Finally, it was also seen that Mert and Eda's departures from their plans mostly resulted in positive ways. For this reason, it can be concluded that, as Smith (1996) stated, teachers' departures from their lessons and improvisational teaching acts are not always a shortcoming of their work but the results of constant interaction between students and teachers at a particular time and context.

The final elements of the scheme, teachers' decision-making and classroom implementations, refer to the process how these teachers decide to implement certain practices in classroom atmosphere by taking all the other factors into consideration. The findings reveal that teachers experience a kind of decision-making, a multifaceted process which takes its source from their language teacher cognition, puts the learner profile in its centre, is shaped by institutional exigencies and sometimes intervened by improvisational acts, and decide on their practices at the end. This process is also dynamic because it is constantly adapted based on changing situations and factors that occur

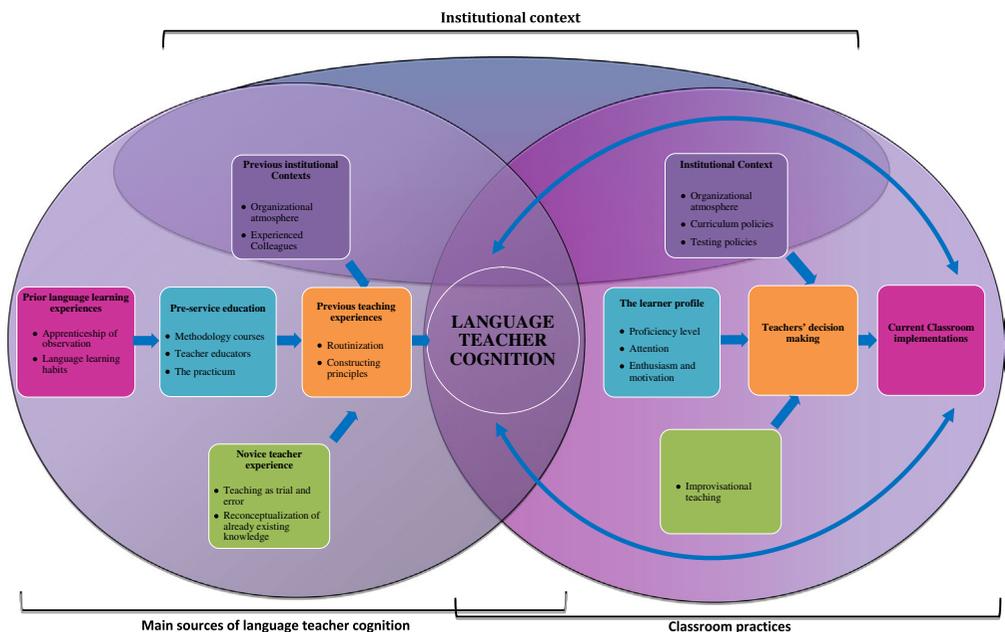
in particular classroom and institutional contexts. The unique nature of this phenomenon is salient in all the participants of the study, Eda, Mert and Zeynep, who had to consider all these elements while teaching and integrate them to their practices in the most effective way and whose decision-makings had to include different elements due to changing situations. As Freeman and Richards (1996, p. 164) stated, “When teachers teach, they revise their planning decisions, respond to students’ understanding and participation, and form new decisions that redirect the lesson. In other words, teachers interact creatively between plans, student responses, and teacher improvisation”.

4.3. Clusters of language teacher cognition: A data-driven model

The last research question of this study aimed to identify how the constructs discussed so far; language teacher cognition, classroom practices and institutional context, were interconnected. The results derived from the cross-cases analyses put forward CLTC; a model which presents a figurative conceptualization of language teachers’ cognition and schematizes the constructs which language teachers have cognition about (Figure 4).

CLTC presents a detailed explanation of language teachers’ cognition, their classroom practices, the impact of institutional context on them and how these three constructs are interconnected. As clear, the model consists of three clusters; formation of language teacher cognition—classroom practices—institutional context, each of which represents one of the constructs of this study. Each cluster is detailed in itself which presents the elements that are influential on the formation of it. In the model, the cluster of institutional context shows the elements which are related to the conditions in institutions and have important effects on both the cognition and classroom practices of language teachers. The cluster of the formation of language teacher cognition presents the process which demonstrates the sources of language teachers’ cognition and reveals the elements which are influential on the development of it but do not have the possibility to be re-experienced. For that reason, prior language learning experiences, the pre-service education, experienced colleagues and the atmosphere of previous institutions, novice years as an EFL teacher and other teaching experiences take place in that cluster. In this sense, the development of language teacher cognition is linear. The third cluster, on the other hand, which stands for the elements that shape teachers’ classroom practices refers to a dynamic process which is symbolized with the arrows in it. That means, any classroom implementation which is the outcome of this process serves as a new experience for teachers and extends their cognition that forms the basis of this process. Language teacher cognition, functioning as the interface between these two clusters, has a central role in the model. It is linear in one sense and cyclical in the other. It is linear due to the fact that most of its elements

Figure 4. Clusters of language teacher cognition (CLTC): A data-driven model.



are acquired through the experiences which are not possible to be re-experienced and they set certain persistent principles in language teachers' cognition. It is cyclical and dynamic in the other sense that any language teaching experience as a classroom implementation extends it as additional knowledge and has the potential to revise, reformulate and adapt already existing constructs and principles. In other words, language teacher cognition and classroom practices have a mutual relationship through which they feed each other.

CLTC presents a figurative conceptualization with its certain distinctive features. First of all, the model schematizes an abstract phenomenon; language teacher cognition, and transforms it into a concrete and simply well-defined one which can be understood following the elements influential on it. The elements on which language teachers have cognition are clearly presented in the model. Secondly, the model is data-driven and it is derived from the lived experiences of EFL teachers, their narrations on them and observations of their practices in real classroom settings. Finally, CLTC provides a detailed research framework for further studies and prospective researchers. The factors which are found to have an impact on the formation of language teachers' cognition and classroom practices are determined. Investigating these factors or their relationships separately in different national, cultural or educational contexts provides new horizons for researchers and their potential findings will contribute to the literature significantly.

5. Conclusion

Language teacher cognition, as a field of inquiry, has long been at the centre of many research studies and reached its peak in early 2000s. This process has given birth to the definition of it as “what language teachers know, believe and think, and its relationship with their practices” (Borg, 2003, p. 81), which has been the point of reference for numerous studies. However, research findings in the literature combined with a recent call in *The MLJ* for re-drawing the boundaries of the field illustrated that a more comprehensive and illustrative perception was needed. Based on this, the study defines language teacher cognition within a broader perspective and puts forward a framework that conceptualizes how teachers construct their cognition on language teaching. Yet, as researchers, we believe that the notion of language teacher cognition would even refer to broader terms that may also include socio-cultural and identity issues which were not inquired by this study. Examination of language teachers' cognition together with other factors like identity or agency in different contexts will obviously broaden our perspectives regarding these terms. Besides, we would also like to highlight that the aim of the current study was not to construct a theory of language teacher cognition but just to propound a unifying conceptualization of the phenomena since basing a theoretical expansion on language teacher cognition on just three cases could have been tenuous.

For this reason, as researchers, we believe that the study and the framework will serve as a guide for forthcoming studies that will focus on the sub-elements of the framework in a more elaborative manner. Investigation of the impact of each sub-element and its role on language teacher cognition will contribute to our understanding. Besides, potential findings on these topics will also be beneficial for policy-making that designs the learning-to-teach processes of language teachers, especially in pre-service education.

Funding

The authors received no direct funding for this research.

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[†] This study is a condensed summary of the PhD dissertation

entitled as “Language teacher cognition, classroom practices and institutional context: A qualitative case study on three EFL teachers” written by Gökhan Öztürk in 2015.

Citation information

Cite this article as: Re-defining language teacher cognition through a data-driven model: The case of three EFL teachers, Gökhan Öztürk & Nurdan Gürbüz, *Cogent Education* (2017), 4: 1290333.

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