T.C.
UNIVERSITY OF GAZİANTEP
GRADUATE SCHOOL OF EDUCATIONAL SCIENCES
DEPARTMENT OF ENGLISH LANGUAGE TEACHING

AN INVESTIGATION ON THE RELATIONSHIP BETWEEN PROSPECTIVE TEACHERS' EARLY TEACHER IDENTITY AND THEIR NEED FOR COGNITION

MASTER'S OF ART THESIS

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Dilara ARPACI

Date of Viva: 01.06.2015
Approval of the Graduate School of Educational Sciences

Assoc. Prof. Dr. M. Fatih ÖZMANTAR
Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master's of Art.

Assist. Prof. Dr. Filiz YALÇIN TILFARLIOĞLU
Head of Department

This is to certify that I (we) has (have) read this thesis and that in my (our) opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master's of Art.

Assist. Prof. Dr. Mehmet BARDAKÇI
Supervisor

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master's of Art.

Examining Committee Members:
(Title, Name and SURNAME) Signature

Assist. Prof. Dr. Mehmet BARDAKÇI

Assist. Prof. Dr. İhsan ÜNALDI

Assist. Prof. Dr. Mehmet KILIÇ

I can no other answer make but thanks,

and thanks,

and ever thanks...

William Shakespeare, Twelfth Night, Act III, Scene 3

I further extend my thanks to TÜBİTAK
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ABSTRACT

AN INVESTIGATION ON THE RELATIONSHIP BETWEEN PROSPECTIVE TEACHERS' EARLY TEACHER IDENTITY AND THEIR NEED FOR COGNITION

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Identifying pre-service teachers' need for cognition and their pre-service teacher identities may guide the explanations on teacher development, and investigating the relationship between them can reveal important implications vital for classroom practice in teacher education institutions. Therefore, this study investigated the relationship between pre-service teachers' early teacher identity and their need for cognition. It was also intended to investigate whether there is a relationship between pre-service teachers' early teacher identity, need for cognition and their gender, GPA, study year, department, schooling background, and teaching experience. The research data was collected with the selection of the sample which consists of 449 students studying at Gaziantep Education Faculty (Departments of English Language Teaching, Turkish Language Teaching, Primary School Teaching, and Mathematics Teaching at Primary Education) in 2013-2014, Spring Term. "Early Teacher Identity Measure (ETIM)" (Friesen & Besley, 2013), adapted to Turkish by the researcher, was used to measure pre-service teacher identities of teacher candidates. The data related to the need for cognition were collected by "Need For Cognition Scale (NFCS)" (Cacioppo & Petty, 1982; adapted to Turkish by Gülgöz & Sadowski, 1996), the data related to attitudes towards teaching profession were collected by using "Attitude towards Teaching Profession Scale (ATPS)" (Çetin, 2006) and lastly, the data related to the personal information of the students were gathered by "Personal Information Form" which was designed by the researcher. The raw data obtained from the scales were analysed by using SPSS 20 and LISREL 8.1. After completing all necessary translation and linguistic equivalence processes in a proper scale adaptation study, confirmatory and exploratory factor analyses were conducted in order to investigate ETIM's psychometric properties. The other adaptation analyses included the split-half reliability coefficient and the test-retest reliability of the scale, item discrimination analysis calculated through a comparison between the top and bottom 27% groups, and criterion validity analysis. All these analyses revealed that the adapted version of ETIM meets all the requirements of an adapted scale in another culture, and the total score can be used as 'ETIM score'. As a second important step, the relationship between early teacher identity and need for cognition was investigated through a Pearson Product Moment Correlation, and it was found that early teacher identity and need for cognition are two separate but related constructs ($r = .62$, $p < .01$). This means that as the level of need for cognition increases, the participants' early teacher identity scores increase. Lastly, the analyses on the demographic variables were conducted via Pearson Product Moment Correlation, independent samples t-test, one-way ANOVA, and Mann-Whitney U Test, and results revealed important results supported by the literature.

Key words: Identity, Professional identity, Teacher identity, Early teacher identity, Construction of pre-service teacher identity, Need for Cognition, Teacher Cognition

ÖZET

MESLEK ÖNCESİ ÖĞRETMEN KİMLİĞİ VE DÜŞÜNME İHTİYACI ARASINDAKİ İLİŞKİNİN İNCELENMESİ

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Eğitim fakültesi öğrencilerinin düşünme ihtiyaçlarını ve meslek öncesi öğretmen kimliklerini belirlemek öğretmen geliştirmeye ve öğretmen yetiştirme kurumlarındaki uygulamalara katkı sağlayabilir. Bu yüzden, bu çalışmanın temel amacı eğitim fakültesindeki öğrencilerin meslek öncesi öğretmen kimlikleri ve düşünme ihtiyaçları arasındaki ilişkiyi incelemeyi amaçlamıştır. Ayrıca, meslek öncesi öğretmen kimliği, düşünme ihtiyacı, cinsiyet, not ortalaması, ders yılı, bölüm, mezun olunan lise ve öğretmenlik deneyimi arasında ilişki olup olmadığı da incelenmiştir. Çalışma verileri 2013-2014 bahar döneminde Gaziantep Üniversitesi, Eğitim Fakültesinde farklı bölümlere devam eden 449 öğrencinin oluşturduğu örneklemden toplanarak elde edilmiştir. Katılımcıların meslek öncesi öğretmen kimliği ve düşünme ihtiyacı düzeylerini belirlemek için, kendilerine araştırmacı tarafından Türkçe' ye uyarlanan Meslek Öncesi Öğretmen Kimliği Ölçeği (Friesen & Besley, 2013), Gülgöz ve Sadowski (1996) tarafından Türkçe' ye uyarlanan Düşünme İhtiyacı Ölçeği (Cacioppo & Petty, 1982) ve Çetin (2006) tarafından geliştirilen Öğretmenlik Mesleğine Tutum Ölçeği verildi. Örneklemin demografik özelliklerini belirlemek için öğrencilere geçmişleriyle ilgili bir anket uygulandı. Verilerin analizinde SPPS 20 ve LISREL 8.1. veri analizi paketleri kullanıldı. Ölçek uyarlama çalışması için gerekli olan tüm çeviri ve dil eşdeğerliliği çalışmaları tamamlandıktan sonra, Meslek Öncesi Öğretmen Kimliği Ölçeğinin psikometrik özelliklerini incelemek için doğrulayıcı ve açımlayıcı faktör analizleri uygulandı. Uyarlama aşaması kapsamında gerçekleştirilen diğer çalışmalar bölük-yarı güvenilirliği, test-tekrar test güvenilirlik katsayısı, alt-üst %27'lik grupların ortalamalarının karşılaştırılması ile elde edilen madde ayırt ediciliği analizi ve dış ölçüt bağıntılı geçerlilik analizlerini içermektedir. Bütün bu analizler Türkçe' ye uyarlanan Meslek Öncesi Öğretmen Kimliği Ölçeğinin bir başka kültüre uyarlanan bir ölçeğin gerekli tüm özelliklerini taşıdığını ve ölçekten elde edilen toplam puanın "Meslek Öncesi Öğretmen Kimliği Puanı" olarak kullanılabileceğini göstermiştir. Çalışmanın temel amacı olan meslek öncesi öğretmen kimliği ve düşünme ihtiyacı arasındaki ilişkinin incelenmesi Pearson Korelasyon Katsayısı ile yapılmıştır ve bu iki değişken arasında istatistiksel olarak anlamlı pozitif bir korelasyon elde edilmiştir ($r = .62$, $p < .01$). Bu sonuç düşünme ihtiyacı düzeyi artarsa meslek öncesi öğretmen kimliği düzeyinin de arttığını göstermektedir. Son olarak, örneklemin demografik özellikleri üzerinde yapılan analizlerde Pearson Korelasyon Katsayısı, Bağımsız Gruplar t Testi, tek yönlü varyans analizi (ANOVA), ve Mann-Whitney U Testi kullanılmıştır ve sonuçlar şimdiye kadar yapılan çalışmalarla aynı doğrultuda çıkmıştır.

Anahtar Kelimeler: Benlik, Mesleki kimlik, Öğretmen benliği, Meslek öncesi öğretmen benliği, Meslek öncesi öğretmen benliğinin oluşturulması, Düşünme İhtiyacı

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CHAPTER ONE
INTRODUCTION

1.0. PRESENTATION

In this chapter, firstly the background to the study is presented. Background information briefly reports which theories and studies have inspired the present study, followed by the problem statement and the purpose of the study. Research questions and the significance of the study follow them. The chapter ends with some assumptions and limitations which have guided the research.

1.1. BACKGROUND TO THE STUDY

1.1.1. Pre-Service Teacher Identity and Need for Cognition

1.1.1.1. Pre-Service teacher identity

The word *identity* derives from the Latin word *idem* meaning "the same," which is defined as "the state of being a specified person or thing, the individual characteristics by which a person or thing is recognized and the state of being the same" (Collins English Dictionary Online, 2013). The term *identity* and *self* are used interchangeably in the relevant sociological literature, and the first detailed psychological discussion of the *self* was done by psychologist William James (1890), who gave a conceptual foundation of it and emphasized its significance in understanding the human behaviour (Leary & Tangney, 2003). James (1890) argued that *self* is what a man can do, and it includes not only his body but his ancestors, friends, lands, children, and etc. According to him, 'self' can be divided into three: the material self, the social self, and the spiritual self. While 'the material self' is about surrounding people and properties, 'the social self' is the recognition by his fellows with an innate desire to be noticed favourably. Lastly, 'the spiritual self' is

inner being and dispositions. Therefore, it can be argued that an individual may have several social selves that he or she experiences in different social contexts.

> A man has as many social selves as there are individuals who recognize him and carry an image of him in their mind … the individuals who carry the images fall naturally into classes, we may practically say that he has as many different social selves as there are distinct groups of persons and about whose opinion he cares … (James, 1890, p. 294).

The psychologist Mead (1934) contributed to the understanding of identity in a social context by identifying identity as something which has a development. "It is not initially there, at birth, but arises in the process of social experience and activity, and it develops in the given individual as a result of his relations to that process as a whole and to other individuals within that process" (Mead & Morris, 1934, p. 135). Another early explanation on the self in the last century was offered by Cooley (1964) who qualified self by the word *social* by focusing on the term *looking glass self*. This reflexive concept claims that a person views own self through others' perceptions in society and in turn gains identity.

Identity is certainly an important part of psychological studies, and it has been studied in various fields like philosophy (Taylor, 1989; Mead, 1934), psychology (Erickson, 1986), anthropology (Holland, Lachicotte, Skinner, & Cain, 1998), and recently teacher education (Freese, 2006; Hoban, 2007; Korthagen, Kessels, Koster, Lagerwerf, & Wubbels, 2001; Olsen, 2008; Riopel, 2006; Sachs, 2005). Although there is a variety of definitions of identity, one of the clearest definitions is by Arnett (2009): "Identity is thinking about whom you are, where your life is going, what you believe in and how your life fits into the world around you" (p. 16).

An individual asks these questions (*whom you are, where your life is going, what you believe in, and how your life fits into the world around you*) throughout his or her life, especially at a critical period when their university life starts. A great number of students choose to study at education faculty after taking university entrance exam in Turkey. Whether they choose teaching education to become a teacher or just to get into a department for the sake of studying at university is a crucial factor for the prosperity of teacher education programmes as it affects teacher development. Since students at teacher education programmes will play a leading role in their future careers, it is extremely important to look into the identity development of these students and find an answer to the question '*who are they*?*'* as

prospective teachers. In other words, they need to have a "clearer sense of who they are" (Varghese, Morgan, Johnston & Johnson, 2005, p. 22) in terms of their professional, personal identities (Day, Kington, Stobart & Sammons, 2006).

Construction of teacher identity is an integration process of the personal and professional sides of becoming and being a teacher (Beijaard, Verloop, & Vermunt, 2000). As a complex and multi-faceted construct, identity is related to teacher development and success in teaching profession. According to Beijaard, Meijer, and Verloop (2004), there are four features critical for teachers' professional identity:

> *1)* professional identity is an ongoing process of interpretation and re-interpretation,
> *2)* professional identity implies both person and context,
> *3)* a teachers' professional identity consists of sub-identities that more or less harmonize, and
> *4)* agency is an important element of professional identity meaning that teachers have to be active in the process of professional identity (p. 122).

Coherently with this, professional identity can be defined by "how a teacher identifies him or herself in the field of teaching" (Lerseth, 2013, p. 9). As most of the studies reach a consensus, Beijaard et al. (2004) emphasize on the dynamic feature of professional identity development in which "individuals negotiate external and internal expectations as they work to make sense of themselves and their work as educators" (p.135) and so each environment contributes uniquely to the pre-service teacher's construction of knowledge and identity (Chong, Low, & Goh, 2011). While pre-service teachers construct teacher identity, they are affected by some factors. In her study, Lerseth (2013) worked on some of these factors which influence teacher identity development: students' past world experiences, experiences and connections with teachers and mentors, student recognition of their own identities, student knowledge of subject matter, teaching pedagogy, teacher dispositions, classroom management, and differing tensions.

As an important factor, prior learning experiences are among the interest areas of teacher cognition research. Lortie (1975) created the term of 'apprenticeship of observation' to refer to the way in which teachers' prior experiences as learners shape their beliefs about education. Therefore, pre-training beliefs should be introduced in teacher training courses (Tillema, 2011). In this respect, Bullough (2005) suggested that teacher identity should be analysed prior to the student

teaching experience by using trained teacher mentors to help pre-service teachers form their professional identities. In that way, pre-service teachers can make sense of classroom information by constructing their teacher identity.

With regard to teacher identity formation, literature offers various examples to facilitate professional teacher identity development. For example, the activities recommended by Alspup (2004) are as follows: pre-service teachers may be asked to provide narrative evidence for their pedagogical decisions to become aware of their classroom decisions by making comparisons with the past experiences; they can also compose reflective writings, role-play classroom scenarios, or videotape their teaching demos, which are contextualized; pre-service students may be encouraged to create visual or text-based metaphors by making their implicit knowledge explicit; with these activities, students can explore their teacher identity and their affective reactions to becoming a teacher. In accordance with this, Awenowicz (2009) suggests teacher education programs to help pre-service teachers explore their professional identities by using narratives, philosophy/concept papers, and metaphors, and Bruckerhoff and Carlson (1995) recommend "research-based teacher education programs with strongly and carefully articulated clinical experiences" (p. 435).

As identity formation is both individual process and a social and institutional process, teacher education programmes can highly impact teacher identity development (Lerseth, 2013) because these institutions are places where prospective teachers learn to belong to professional community which involves the construction of teacher identity (Maynard, 2001). By the same token, teacher education includes the acquisition of pedagogical and content knowledge and professional standards of teaching, and assimilating them into the emerging sense of self as a teacher.

In conclusion, ideas and cognition about self as a teacher are based on available information and past and present experiences (Chong et al., 2011). Hence, teachers must "consciously think about their practice to move them towards deeper levels of awareness not just about what they do but about why they do it" (Forde, McMahon, McPhee, & Patrick, 2006, p. 18). Allowing one's own personality to show is a part of individualizing teacher identity. With regards to this, "to respond to the many complex demands placed on them, teachers need to be secure in their

understanding of their place in the profession and in society" (Forde et al., 2006, p.15), which can be managed by having a high level of need for cognition.

1.1.1.2. Need for cognition (NFC)

The idea of 'tendency to engage in and enjoy thinking' is a part of the history of personality and social psychology (e.g., Asch, 1946; Murphy, 1947; Sarnoff & Katz, 1954). The nature of the knowledge and the character of the underlying process that enables the acquisition and use of this knowledge have been the main points of the studies of cognition. In this context, Murphy (1947) categorized the people with a similar tendency as *thinkers*, and Katz (1960) studied on individuals who *need to understand* (p. 170). However, it was Cohen, Stotland, and Wolfe (1955) who distinguished the concept of need for cognition by taking gestalt models as a start point.

The notion of 'need for cognition' has been developed by Cohen et al. (1955). Cohen et al. (1955) conducted studies on individual differences in cognitive motivation, and they identified *need for cognition* as "the individual's need to organize his experience meaningfully", the "need to structure relevant situations in meaningful, integrated ways", and "need to understand and make the experiential world reasonable" (p. 291). In this conceptualization, NFC is associated with one's looking for clarity for structure which is similar to present day scales measuring need for structure (Webster & Kruglanski, 1994). When an individual is unable to make sense of the situation in meaningful ways, he/she is likely to experience *feelings of tension and deprivation*, which, in turn, is likely to cause the individual to initiate "active efforts to structure the situation and increase understanding" (Cohen et al., 1955, p. 291). Cohen's (1957) view of need for cognition stressed the motivational aspects of that need, assuming that a state of tension would lead to negative affect and to active efforts to remedy a situation where the need for cognition was unfulfilled.

In 1982, Cohen's original NFC measurement was no longer available, so Cacioppo and Petty (1982) developed a new scale with a new conceptualization by using the same term to appreciate the studies done by Cohen and his colleagues (1955). With this developed frame, Cacioppo, Petty, Feinstein, and Jarvis (1996) denominated people low in NFC as *cognitive misers* due to their tendency to avoid

effortful thinking, and used the term *concentrated cognisors* for those high in NFC as they have willingness to engage in effortful processing. Individuals high in NFC are in need of querying, thinking, and comprehension, and they use the information that they collect to form ideas about the stimulants with an intrinsic motivation. As opposed to these, individuals with low NFC rely on social comprehension process and others' knowledge and experiences with a need for extrinsic motivation (Cacioppo & Petty, 1982; Cacioppo, Petty, Kao, & Rodrigez, 1986; Cacioppo, Petty & Morris, 1983).

NFC has received significant attention in the social sciences as evident by a literature review of over 100 studies (Cacioppo et al., 1996), with research conducted primarily among undergraduates, in experimental designs. As noted by Petty, Briñol, Loersch, and McCaslin (2009), over 1,000 publications from various fields have cited the original article on NFC scale (Cacioppo & Petty, 1982) or mainly the short version of the scale (Cacioppo, Petty, & Kao, 1984). There is now a vast body of literature that shows how need for cognition affects responding in areas ranging from social and cognitive psychology to medicine, journalism and law (Cacioppo et al., 1996).

Cacioppo and Petty (1982) defined *need for cognition* (NFC) as "the tendency for people to vary in the extent to which they engage in and enjoy effortful cognitive activities" (p. 117), and they conceptualized it also as "a personality construct that was developed to address individual differences in motivation for cognitive processing" and "an important individual difference related to the strength and stability of attitudes" (p. 117). Despite the fact that NFC has attracted substantial attention from scholars in psychology and many other fields, little attention has been devoted to studying the role of NFC in the context of teacher training.

It is assumed that universities, as the source of academic studies, are oriented to research and thinking, and the students of these institutions are apt to thinking and enjoy this situation. Especially, the students at education faculties are assumed to enjoy thinking as they will be the ones fostering thinking in their future classes. That's why; teacher training must focus on not only on quantitative concerns but also qualitative concerns because deep field knowledge must not be the only focus of teacher training (Temel, 1987).

With the inspirations from the previous studies, this study aims to probe into teacher training education by investigating pre-service teachers' teacher identities and their need for cognition. Identifying prospective teachers' need for cognition and their pre-service teacher identities may guide the explanations on teacher development, and investigating the relationship between them can reveal important implications vital for classroom practice in teacher education institutions.

1.2. PROBLEM STATEMENT

Although there are a good number of studies about teacher identity in the field of educational science, the studies conducted about pre-service teacher identity are quite limited. Since pre-service teacher identity is not commonly under-researched in Turkey as well, it is thought that there is a need for a scale measuring pre-service teachers' teacher identity to meet the needs of the teacher education programmes in a broader sense. Within this context, the question of "Is Early Teacher Identity Measure (ETIM) developed by Friesen and Besley (2013) reliable for pre-service teachers in Turkey?" constitutes the first problem statement of this study.

Beauchamp and Thomas (2009) emphasized that there should be done further investigation to appreciate the importance of identity in teacher development as the identity is a complex context. Teacher educators at universities should care about research on teachers' professional identity formation so that they can determine how they should support student teachers to become effective teachers and perceive themselves as teachers (Korthagen, 2004; Tigchelaar & Korthagen, 2004). Therefore, research on professional identity formation is an absolute must for teacher educators to better understand and organise the support to student teachers (Volkmann & Anderson, 1998).

Apart from analysing the concept of teacher identity construction on its own, some other factors like 'need for cognition' may affect the development of pre-service teacher identity. Borg (2006) defines teacher cognition as "the networks of *beliefs, knowledge,* and *thoughts* about their profession" (pp. 20-21). If prospective teachers want to have an ideal teaching career, they need to focus on their cognitive representations of their ideal, ought to, and feared selves as prospective teachers. If

formation of teacher identity is conceptualized as a 'learning process' (Tütüniş, 2012), prospective teachers must be more active in this process by engaging in and enjoying effortful cognitive activities while constructing their teacher identities. Therefore, teacher education institutions can provide reasons for a better construction of teacher identity for students low in NFC.

Each of these theoretical positions makes an important contribution to the assumption of a possible relationship between need for cognition and pre-service teacher identity formation. Petty et al. (2009) stated that "individuals high in NFC tend to think more than those low in NFC about all kinds of information, including their own thoughts –metacognition" (p. 319), and Dickhäuser and Reinhard (2006) concluded that "NFC is an important variable influencing motivational processes, and should be included in models describing the relation between self-concepts and individual beliefs or behaviours" (p. 492). Within this scope, it can be assumed that high levels of NFC may help prospective teachers to construct their teacher identities with deliberate steps, which leads us to another problem statement of this study: "Is there a relationship between prospective teachers' early teacher identities and their need for cognition?"

1.3. PURPOSE AND SIGNIFICANCE OF THE STUDY

The current study is expected to add a new perspective to the studies on pre-service teacher identity and need for cognition. These two concepts have never been studied together although they have been investigated in a good number of studies separately. Therefore, the main concern of current study is to investigate whether there is a relationship between prospective teachers' early teacher identities and their need for cognition. A particular focus is placed on pre-service teacher identity because a more complete concept of identity and in particular teacher identity could enhance the ways in which teacher education programs are conceived (Beauchamp & Thomas, 2009). As it is teacher education programs' responsibility to create opportunities for the exploration of new and developing teacher identities, more detailed studies are required in this area.

Recent studies on teacher identity (Danielewicz, 2001; Beijaard et al., 2004; Varghese et al., 2005; Walkington, 2005; Soreide, 2006; Richards, 2008; Day et al., 2006; Dewi, 2007; Tsui, 2007; Chen, 2009) provide useful implications to study on this topic. Moreover, there is a need for studies investigating prospective teachers'

teacher identities in Turkey because existing studies were conducted in different cultural contexts which are different from that of Turkey. Therefore, the study will try to be conducted first by adapting a scale measuring prospective teachers' teacher identities (Early Teacher Identity Measure, ETIM by Friesen and Besley, 2013) in Turkish to investigate its psychometric properties.

In Turkey, many students at education faculties complain about not being able to feel like a teacher. The problem underlying this may be the effect of their level of need for cognition. They may need to be encouraged to think more on their future jobs as prospective teachers. For this reason, this study has been conducted to fill a gap in the literature of construction of teacher identity by focusing on the relationship between pre-service teacher identity and need for cognition. This relationship will be investigated by using the measurement tools; Early Teacher Identity Measure and Need For Cognition Scale. The analysis of the results may either prove or refute the existence of a relationship between these two concepts. Moreover, the relationships between some demographic variables (gender, GPA, study year, department, schooling background, and teaching experience) and these two factors (early teacher identity and need for cognition) will be analysed.

Teacher identity is an overly investigated topic in foreign countries like the U.S.A, England and China (Varghese et al., 2005; Walkington, 2005; Soreide, 2006; Richards, 2008; Day et al., 2006; Tsui, 2007; Chen, 2009). With a more specific reviewing, this study will focus on pre-service teacher identity which is an important area that should be studied in depth through which one may acquire beneficial implications for successful teacher training and development of prospective teachers' teacher identity. Considering the absence of a scale to measure pre-service teachers' teacher identity, the scale used in this study is the first measurement tool about pre-service teacher identity in the field in Turkey. Furthermore, the current study also aims to find out a possible variable, need for cognition, which may have an association with construction of pre-service teacher identity. The fact that these two concepts, early teacher identity and need for cognition, will be studied together for the first states another significance of the present study.

In this manner, this study has both theoretical and practical significance. Theoretically, it is of great significance to analyse and examine the existence of a possible relationship between early teacher identity and need for cognition. The correlational statistics between these two variables and some other demographic

variables (gender, GPA, study year, department, etc.) will provide more empirical evidence for theoretical part. Practically, if a statistically significant relationship between them is obtained, this will add a new perspective to the studies on teacher identity development. In addition, this study will also adapt a newly developed scale measuring prospective teachers' teacher identities. As a consequence, the practical applications of the findings of this study may help teacher education faculties to have well-established programmes for prospective teachers.

Although there are studies consistent with an association between need for cognition and identity development, no study explicitly links need for cognition and pre-service teacher identity development. In the present study, it is hypothesized that students (at teacher education faculties) with higher levels of need for cognition would score at higher levels of early teacher identity because they are more likely to have explored aspects of their professional identity. Nonetheless, the conclusions from this first examination of NFC and early teacher identity association should be viewed as tentative and not conclusive. Further examination of the relation between NFC and early teacher identity development could provide more definitive evidence for what accounts for differences in identity development may be the desire to engage in effortful thought.

1.4. STATEMENT OF RESEARCH QUESTIONS

This study aims to find answers to the following questions:

Research question # 1 Do the construct validity and reliability analyses of data collection tool (Early Teacher Identity Measure) reveal acceptable statistics and coefficients?

1a. What is the factor structure of Turkish form of the scale after conducting factor analyses?

1b. What are the reliability coefficients of the ETIM?

1c. What is the item discrimination of the ETIM?

1d. According to criterion validity, is there a relationship between the ETIM and Attitude towards Teaching Profession Scale?

Research question # 2 Is there a relationship between students' pre-service teacher identity and their need for cognition (as determined by Early Teacher Identity Measure and Need For Cognition Scale)?

Research question # 3 Is there a relationship between students' pre-service teacher identity and demographic variables (as determined by a background questionnaire)?

3a. Is there a relationship between students' pre-service teacher identity and their gender?

3b. Is there a relationship between students' pre-service teacher identity and their GPAs?

3c. Is there a relationship between students' pre-service teacher identity and their study year?

3d. Is there a relationship between students' pre-service teacher identity and their departments?

3e. Is there a relationship between students' pre-service teacher identity and their schooling background?

3f. Is there a relationship between students' pre-service teacher identity and teaching experience?

Research question # 4 Is there a relationship between students' need for cognition and demographic variables (as determined by a background questionnaire)?

4a. Is there a relationship between students' need for cognition and their gender?

4b. Is there a relationship between students' need for cognition and their GPAs?

4c. Is there a relationship between students' need for cognition and their study year?

4d. Is there a relationship between students' need for cognition and their departments?

4e. Is there a relationship between students' need for cognition and their schooling background?

4f. Is there a relationship between students' need for cognition and teaching experience?

1.5. LIMITATIONS OF THE STUDY

The main limitations of the study which may have affected the results may have aroused from the duration of the study and the number of the participants. As the study was conducted only at a state university, the results are limited with the conditions at this university. Therefore, the study might only reflect the perceptions of the students at this institution. This obviously limits the generalizability of the findings from this study. In order to address this limitation, it is necessary to collect data in multiple institutions.

1.6. ASSUMPTIONS OF THE STUDY

Assumption # 1 The sample participating in the study is assumed to reflect the population that is the whole body of students at University of Gaziantep, Faculty of Education. The assumption is based on the fact that the selection of the sample was made through cluster random sampling to assure that the sample represents the whole population.

Assumption # 2 The scales were tried to be applied in a stress-free environment to eliminate the anxiety-provoking external factors. The participants had the option not to attend the study. They were given the chance to reject being a participant of the study or quit at any time they wanted. They were told that the results of the study would have no effect on their classroom grades at all.

Assumption # 3 Based on the above reasons, it is assumed that the subjects have answered the questions in the scales sincerely.

1.7. DEFINITION OF TERMS AND ABBREVIATIONS

Identity:

"Identity is thinking about who you are, where your life is going, what you believe in and how your life fits into the world around you" (Arnett, 2009).

"a resource that people use to explain, justify and make sense of themselves in relation to others, and to the world at large" (MacLure, 1993).

Teacher identity:

"… is how teachers define themselves to themselves and to others" (Lasky, 2005).

"the active pursuit of professional development and learning in accordance with a teacher's goals" (Beijaard et al., 2004).

Early teacher identity:

"pre-service teachers' self-understanding involving questions like -who am I as a teacher at this moment and who do I want to become as a teacher-" (Kelchtermans, 2005).

Need for cognition:

"the tendency for people to vary in the extent to which they engage in and enjoy effortful cognitive activities" (Cacioppo & Petty, 1982).

NFC: Need For Cognition

NFCS: Need For Cognition Scale

ETIM: Early Teacher Identity Measurement

ETI: Early Teacher Identity

ATPS: Attitude towards Teaching Profession Scale

CFA: Confirmatory Factor Analysis

EFA: Exploratory Factor Analysis

CHAPTER TWO
REVIEW OF LITERATURE

2.0. PRESENTATION

This chapter reviews the literature on identity, teacher identity, and particularly pre-service teacher identity. Furthermore, need for cognition and studies on it are presented. It goes on with an account of their place in education by referring to the relationship between them.

2.1. PRE-SERVICE TEACHER IDENTITY

2.1.1. Identity

Identity has been explored across different disciplines like philosophy (Taylor, 1989; Mead, 1934); psychology (Erickson, 1986), anthropology (Holland et al., 1998), and recently teacher education (Freese, 2006; Hoban, 2007; Korthagen et al., 2001; Olsen, 2008; Riopel, 2006; Sachs, 2005). Arnett (2009) says that "identity is thinking about whom you are, where your life is going, what you believe in and how your life fits into the world around you" (p. 36). Although studies agree on that there is a need for a clear definition of identity, there is general acknowledgement of its 'multi-faceted and dynamic nature' as Gee (2001) focuses on this multifaceted nature of identity and its changing feature by adding that there are multiple forms of identity in different contexts in addition to 'core identity'. He categorizes four ways that identity might be perceived: **a)** *nature-identity* (stemming from one's natural state), **b)** *institution-identity* (derived from a position recognized by authority), **c)** *discourse-identity* (resulting from the discourse of others about oneself), and **d)** *affinity–identity* (determined by one's practices in relation to external groups) (Gee, 2001, p. 99).

How identity shifts and reshapes is another aspect being discussed in the literature. Some researchers define that process as the 'development' of identity (Watson, 2006; Olsen, 2008) or the 'construction' of identity (Lave & Wenger, 1991; Coldron & Smith, 1999; Søreide, 2006). It is also referred as identity 'formation' (Rodgers & Scott, 2008), 'identity making' (Sfard & Prusak, 2005), 'creating' an identity (Parkison, 2008), 'shaping' an identity (Flores & Day, 2006), and 'building' identity (Sfard & Prusak, 2005). All these denominations actually try to answer questions like 'How does an identity shift and change?', 'How do we characterize this change?', 'What happens in the shifting from one identity to another?', and 'Who or what influences the change?' (Beauchamp & Thomas, 2009, p. 177).

As a matter of course, shaping identity is closely connected to self (Erikson, 1968; Mead, 1934), personal identity (Korthagen, 2004), self-understanding (Kelchtermans, 2005), the expectations of the society (Beijaard et al., 2004), emotions, discourse, reflection, agency, and the contextual factors that promote or hinder the construction of identity (Beauchamp & Thomas, 2009). According to Adams (1998), individuals need a sense of uniqueness and a sense of belonging. Correspondingly, Sfard and Prusak (2005) define identity as: "a discursive counterpart of one's lived experience" by saying that it is "our vision of our own or other people's experiences" (p. 13) and relate it to "how collective discourses shape personal worlds and how individual voices combine into the voice of a community" (p. 14). As a result, the society's expectations of the adolescents can actually influence the adolescents' identity development.

Marcia (1976) points out that there are four identity statuses which are 'identity achievement, identity moratorium, identity foreclosure, and identity diffusion' (p. 145). Identity achievement is when an adolescent explores meaningful alternatives and makes a commitment (Adams, 1998) while identity moratorium is when an adolescent explores meaningful alternatives but makes no commitment (Parkison, 2008). On the other hand, identity foreclosure is the status of an adolescent who has made a commitment, but no exploration (Everall, Bostik & Paulson, 2005; Bergh & Erling, 2005). Lastly, identity diffusion is the status of an adolescent who has neither explored nor made a commitment to an identity (Santrock, 2007). Erikson (1956) explains that "identity achievement is a stepping stone to become happy and productive people compared to those who are still confused about their identity role" (p. 56). When adolescents reach identity

achievement, they will have a better quality of life. According to Erikson (1968), adolescents will probably experience psychological moratorium as part of their identity exploration because they have to decide who they really are, what they are all about and where they are going in life. While adolescents searching for an identity tend easily to change their identity, the ones with achieved identities are not easily influenced by the circumstances because they already know what they want in life (Bergh & Erling, 2005). If they can cope successfully with the conflicting roles and identities, a new sense of identity will emerge. Everall et al. (2005) enounce that adolescents with achieved identity have higher self-esteem and self-confidence, more self-consciousness as well as high level of happiness and satisfaction for a better quality of life. Moreover, their cognitive development is more advanced than adolescents in the other identity statuses (Krettenauer, 2005).

In line with the above mentioned studies, recent studies in teacher education place importance on identity by which different aspects of teaching can be analysed (Olsen, 2008). As literature indicates, identity has great importance in teacher development (Freese, 2006; Hoban, 2007; Korthagen et al., 2001; Olsen, 2008; Riopel, 2006; Sachs, 2005), so understanding identity and the issues related to it is crucial in teacher education. In view of these facts, there should be further investigation done to appreciate its importance in teacher education as the identity is a complex context (Beauchamp & Thomas, 2009).

2.1.2. Teacher Identity

The concept of teachers' professional identity has gained attention from the teacher education studies as an important evolving research area (Beijaard et al., 2004). Since disciplines tend to have particular teaching cultures of their own, some literature suggests that the choice of teaching discipline may also affect identity (Barty, 2004; Pennington, 2002; Varghese et al., 2005). Identity is defined as a "resource that people use to explain, justify and make sense of themselves in relation to others, and to the world at large" by MacLure (1993, p. 312), so it can also be seen as an organizing element in teachers' professional lives. That being the case, "teacher professional identity is how teachers define themselves to themselves and to others" (Lasky, 2005, p. 899), and it evolves over career stages as a construct of professional self (Ball & Goodson, 1985a; Huberman, 1993; Sikes, Measor, & Woods, 1985).

Defining the concept of "teacher identity" has often been difficult for authors because it is dynamic and shifts under the influence of various internal and external factors (Beauchamp & Thomas, 2009). Mitchell and Weber (1999) call teacher identity as the constant 'reinventing' process that teachers undergo. After a systematic investigation of literature about teacher professional identity, Beijaard et al. (2004) state that "teacher identity is an on-going process, and therefore it is a constantly evolving phenomenon" (p. 111), and it is "the active pursuit of professional development and learning in accordance with a teacher's goals" (p. 112).

Teachers' professional identity can be analysed by looking at the tension between "being born as a teacher and becoming a teacher" (Schepens, Aelterman, & Vlerick, 2009, p. 361). Therefore, it may be noted that teacher identity is the combination of both personal and professional aspects of identity (Beauchamp & Thomas, 2009). Connecting identity with being a teacher may help us to think more clearly about identity in terms of teacher development, which will lead to a balance between the personal and professional dimensions of teaching (Lipka & Brinthaupt, 1999). As a result of "the unavoidable interrelationships between professional and personal identities" (Day et al., 2006, p. 602), there are sub-identities within a teacher's professional identity, and they must be balanced to avoid overlap (Beijaard et al., 2004). As a consequence of the interactions within schools and the other parts of the society, further identity shifts may occur throughout a teacher's career (Beauchamp & Thomas, 2009).

Professional identity formation is defined as "an on-going process of integration of the personal and the professional sides of becoming and being a teacher" (Beijaard et al., 2004, p. 113), and it is an interactional phenomenon taking shape with others and with the environment (Sleegers & Kelchtermans, 1999; Korthagen, 2004; Beijaard et al., 2004). Rodgers and Scott (2008) also adopt both personal and professional aspects of identity by noting the importance of the external aspects (contexts and relationships) and internal aspects (stories and emotions) in identity formation "where the normative demands of the external encounter the internal meaning making and desires of the teacher" (p. 733). In this respect, teacher identity can be viewed as both 'product' (a result of influences on the teacher) and 'process' (a form of on-going interaction within teacher development) in a sociocultural perspective (Sfard & Prusak, 2005; Olsen, 2008).

> I view identity as a label, really, for the collection of influences and effects from immediate contexts, prior constructs of self, social positioning, and meaning systems (each itself a fluid influence and all together an ever-changing construct) that become intertwined inside the flow of activity as a teacher simultaneously reacts to and negotiates given contexts and human relationships at given moments (Olsen, 2008, p. 139).

The studies on teacher identity highlight the conflict between what teachers personally desire and what society's expectation is (Beijaard et al., 2004; Korthagen, 2004). In order to prevent the disadvantages of this conflict, teacher identity must combine both person and context in which teachers learn individual professional characteristics (Beijaard et al., 2004). Gee (1999) likens a teacher's identity to "weaving together", so in professional identity development, personal subjectivities and professional-cultural expectations about what it means to be a teacher must be integrated (Alspup, 2004).

> Teacher professional identity then stands at the core of the teaching profession. It provides a framework for teachers to construct their own ideas of 'how to be', 'how to act' and 'how to understand' their work and their place in society. Importantly, teacher identity is not something that is fixed nor is it imposed; rather it is negotiated through experience and the sense that is made of that experience (Sachs, 2005, p. 15).

In identity development, new teachers in a community of professionals are subject to the influences of this community. Since they intensely feel the impact of the community context, they feel the necessity to reshape their own identities (Alsup, 2006). Nias (1989) signifies that teachers' professional identity designates "how teachers teach, how they develop professionally and how they approach educational changes" (p. 152). Professional identity formation is a part of learning to teach in a detailed way. In the process of teaching, behaviour, competencies, beliefs, identity and mission are fundamental as stated by Korthagen (2004). Therefore, teacher identity is a concept which must be developed from the beginning at the teacher education programmes. If it is not formed before taking the job, first years may be challenging for beginner teachers. Coherently with this, Alspup (2004) sincerely explains her frustration when she first started the job, which clearly reflects the confusion a beginner teacher goes through, and then she started to believe that a teacher must develop a sense of professional identity:

> Fifteen years ago I struggled as a first-year high school English teacher. It was a *very* difficult year. I had thought I was prepared for my new job, so the realization that I was not as ready as I predicted came as quite a shock. I knew my content, and I was knowledgeable about many creative pedagogical strategies, but I couldn't figure out how to place myself in the classroom-who *was* I as a teacher? How much of my own self could I bring to my class? How much of a new persona, almost a new person, did I have to create to interact effectively with students? I felt disoriented and a little off balance. I didn't know how to be a teacher even though I knew the fundamentals of a teacher's work. In short, I struggled with assuming a teacher identity (p. 35).

Rogers and Babinski (2002) state that "despite all of the research and all of the books and articles written about the difficulties endured by beginning teachers, the first year of teaching continues to be an exceptionally difficult time for most of them" (p. 2). The studies conducted by Moore and Hofman (1988) and Gaziel (1995) support this saying by remarking that the professional identity and job-drop-outs are interrelated. It was found that only 50% of new teachers' careers last longer than five years (Huling-Austin, Odell, Ishler, Kay, & Edelfelt, 1989; Gordon, 1991). In line with these, Bullough (1987) argues that "many of the teachers who remain in classrooms end up teaching in ways that are inconsistent and even contradictory to their initial pedagogical beliefs, goals, and expectations" (as cited in Rogers & Babinski, 2002, p. 3). Consequently, teachers who develop a rich, well-rounded identity, or sense of self are truly successful over the long term (Alspup, 2004).

Teacher professional identity is also linked to sense of purpose because teachers' primary and moral purposes are the deeper motivations behind why they teach (Lasky, 2000). Lasky (2005) found that teachers' interactions with students and having positive influence on students' academic, social, and emotional development created their feelings of job satisfaction by revealing that teachers' beliefs about being a good teacher were in line with their professional identity.

Another significant point in literature is the identification of teacher identity which has been explored in different ways. For example, narratives in which teachers commented on themselves and their teaching lives, (Connelley & Clandinin, 1999; Sfard & Prusak, 2005), variety of discourses (Alsup, 2006), and metaphors guiding teacher's understanding of the role (Hunt, 2006; Leavy, McSorley, & Boté, 2006) were some of the ways by which researchers have investigated teacher identity.

Lastly, shaping teacher identity is closely connected to self, emotions, discourse, the narrative/discursive aspects, reflection, agency, and the contextual factors that promote or hinder the construction of teacher identity (Beauchamp & Thomas, 2009). In addition to demographics, personality traits and experience; teacher preparation context is another important aspect in professional identity formation (Schepens et al., 2009).

2.1.2.1. Factors promoting the construction of teacher identity

As an important factor affecting teacher identity construction, *self* shapes teacher identity with the help of interaction in a professional context. This idea is clearly expressed by Beauchamp and Thomas (2009) who stated that "identity development for teachers involves an understanding of the self and a notion of that self within an outside context, such as a classroom or a school, necessitating an examination of the self in relation to others" (p. 175). Accordingly, identity is not just something related to personal dimension of the self, but it is also associated with the profession, so with the teacher identity, which is well explained by Freese (2006) with the phrase 'our teacher selves' (p. 102). Wenger (1998) also emphasized on the existence of a clear link between the personal and professional self of a teacher by also associating identity with practice. In this point of view, identity is the negotiated experience of self. Lauriala and Kukkonen (2005) reports the term *identity* is used for teachers and the term *self-concept* is used for students by highlighting that they are actually the same thing. According to them, identity and self-concept are both dynamic and stable. With this in mind, they created a model of self-concept formation with three dimensions: the actual self (the one that currently prevails), the ought self (the one recognized by society or an external group as the goal), and the ideal self (the one set by the individual as possible target for achievement). Likewise, Hamachek (1999) puts value on self-knowledge as a key concept linked to teacher identity. In consequence, the personal and professional selves of a teacher are important to understand teacher identity.

Subsequently, emotion is assumed as another internal factor affecting teacher identity (Rodgers & Scott, 2008; Van Veen & Sleegers, 2006; Zembylas, 2003), while job and life experiences are external to the individual (Flores & Day, 2006; Rodgers & Scott, 2008; Sachs, 2005). As emotion may have impact on profession, it may also be affected by the profession. Hargreaves (1998, 2001) puts

forward that emotion is an influential agent in teachers' identities and their professional lives. For example, one of the issues receiving attention in the discussion of identity is the caring aspect of teaching which is valued especially by the beginner teachers a lot. Thus, high level of emotion is involved in some periods in a teacher's professional life (van Veen, Sleegers, & van de Ven, 2005; van Veen & Sleegers, 2006; O'Connor, 2008). According to Zembylas (2003), the emotions teachers experience 'expand or limit possibilities' in teaching. Therefore, emotions may have important implications in the study of emotion for an understanding of teacher identity.

Next, the inseparable link between identity and agency has been noted throughout literature (Day et al., 2006; Parkison, 2008; Holland et al., 1998). "What may result from a teacher's realization of his or her identity, in performance within teaching contexts, is a sense of agency, of empowerment to move ideas forward, to reach goals or even to transform the context" (Beauchamp & Thomas, 2009, p. 178). When it is taken into consideration that a teacher's identity will have multiple dimensions, "agency may be involved in the maintenance or further shaping of these identities and the attention to tensions among them" (Day et al., 2006, p. 603).

As a final point, the personal and societal influences on teachers' identity formation have been broadly discussed in literature. For example, Tickle (2000) suggests using the term *professional characteristics* as indicators of professional identity to examine the interrelationship between the teacher education context and professional identity formation. Moreover, as studies report, *context* has impact on shaping identity in pre-service teacher education (Smagorinsky, Moore, Cook, Jackson, & Fry, 2004) and on the experience of new teachers in their beginning practice (Flores & Day, 2006). Context includes the school environment, the nature of the learner population, the impact of colleagues and of school administrators, which are extremely effective in shaping teacher identity. With the exposure to these contexts, teachers can interact, develop and become aware of their possible identities, and the role of teacher education programs can be considered crucial at this point (Coldron & Smith, 1999, p. 711). Secondly, school culture can affect teacher identity as it develops throughout one's career stages (Little, 1981, 1996; Yee, 1990; Hargreaves, 2000; Mclaughlin & Talbert, 2001; Day, 2002). In many countries, schools set out some basic competences and social expectations, which have a great impact on beginning teachers (Aelterman, 1997; Devos & Vanderheyden, 2002).

Lasky (2005) analyses teacher descriptions of the early influences on their identity formation by using the concept of mediated agency and concludes that school policies accompanied with new tools like curricula or accountability has impact on teachers' sense of identity and sense of purpose as a teacher. Evidently, teacher identity is one aspect of individual teacher capacity, and it can be shaped by learner population, colleagues, school administrators, school, literacy policy, state education policies, and political contexts (Datnow et al., 2000; Sachs, 2005; Coburn, 2001; Achinstein, Ogawa, & Speiglman, 2004) because systems like these establish new norms, expectations, and tools for profession either positively or negatively. On the other hand, contrary to these explanations, Lasky (2005) brought a new point of view by investigating how teachers understand and experience the norms and tools of reform through the lens of their professional identity, and he observed that these systems might have little effect on shaping teacher identity if teachers are sure of whom they are as teachers.

2.1.2.2. Exploring teacher identity

One of the most common techniques to explore teacher identity is using stories. Since the stories are seen as a way to express identity, narrative and discourse aspects of identity are used to learn more about teacher identity (Beauchamp & Thomas, 2009). Teacher narrative to express identity is assumed as the indicative of their growing understanding of their professional identities within changing contexts (Connelly & Clandinin, 1999). It is also important to note that the expression of multiple identities is possible through a teacher's narrative position, as for example, the identity of a caring or a creative teacher (Søreide, 2006). Sfard & Prusak (2005) state that "identifying can be seen as a discursive activity and identity-making can be seen as a communicational practice" (p. 15). Likewise, Watson (2006) notes that "telling stories is doing identity work" (p. 509), and Sfard and Prusak (2005) define identity as 'discursive counterparts of one's lived experience' (p. 14). In this respect, "the study of teacher discourse is not only revelatory of identity but also indicative of the way in which identity is negotiated by an individual within external contexts" (Beynon, 1997, p. 28). Therefore, it can be said that the study of teacher talk can lead to a heightened understanding of identity as Alsup (2006) concludes that pre-service teachers recognize their personal and professional identities through engagement in

discourse. This recognition occurs during "a dialogic engagement with students, mentors, teacher educators, family, peers, and even internal dialogues with other personal subjectivities, beliefs, or ideologies" (p. 14), which Alspup (2004) calls 'borderlands'. Borderland discourse (narratives, belief statements, philosophy statements, and metaphors) brings personal subjectivities into the classroom and links them to a developing professional identity. During these discursive borderlands, the prospective teachers find out how to move from being students to being teachers (Alspup, 2004).

In line with the narrative and discourse, the use of metaphor is another way of exploring identity. In the literature, there are a lot of examples of metaphors used by pre-service teachers and practising teachers to explain their understanding of their identities (Conle, 1996; Martinez, Salueda & Huber, 2001; Ben-Peretz, 2001; Goldstein, 2005; Leavy et al., 2006). For instance, in an attempt to emphasize the difficulties teachers going through in their career while matching their self-image with the school context, Ben-Peretz (2001) conducted a study in which they wanted teachers to identify their own teacher identities with some occupations like judge, zoo keeper, orchestra conductor, etc. In another study, Leavy et al. (2006) concluded that there was a difference in the use of metaphors between the early years of teaching and later on in the development. While teachers use more behaviourist metaphors at the beginning of their career, they turn into using more constructivist metaphors in years. Although metaphor is an obvious vehicle to understand teacher identity, Lesnick (2005) argues that the metaphors associated with teacher identity must be re-considered because previously used metaphors may not be enough to describe teacher identities today and suggests that new metaphors should include both the profession and the identities within it.

As a final point, reflection is another way of exploring teacher identity, and Lasky (2005) likens using reflections for analyses of teacher identity to an archaeologist's making meaning while sifting through layers at a dig site. With the help of reflection, teachers can be more aware of their sense of self by shaping their identity (Beauchamp & Thomas, 2009). For this reason, the role of reflection in teacher development has been acknowledged, and it was recognized as the core of effective teaching (Larrivée, 2000; Korthagen et al., 2001; Rodgers, 2002; Jay, 2003). It cannot be separated from teacher identity development (Beauchamp & Thomas, 2009) because it can provide a way of shaping teacher identity (Lauriala &

Kukkonen, 2005) by projecting a prospective identity as well (Urzúa & Vásquez, 2008).

2.1.3. Pre-Service Teachers' Teacher Identity

By the age of 18 years old, adolescents are expected to know what they want to do with their life (Farhana, Azlan, Kamaruzaman & Azyyati, 2010), so they must be determined about which department they want to choose for their university education. While adolescents with identity achievement know exactly which department to choose as they have more certain future plan, the ones who have not reached identity achievement will have difficulty in choosing the appropriate department to study. This uncertainty may cause dropping out of university or changing the subject area later in their study years (Yunus, Malik, & Zakaria, 2012).

Since adolescence is a critical period for all adolescents to develop an identity, prospective teachers should not be unsure of their identity and future plans (Yunus et al., 2012). Britzman (1991) states that becoming a teacher is a type of "identity transformation." Students of teacher education programmes move through different phases of teacher identity development throughout their college education, so there is a need to address identity more effectively as a component of teacher education (Beauchamp & Thomas, 2009). In accordance with these ideas, Beijaard et al. (2004) identify four essential features of professional identity: "professional identity is dynamic; it consists of sub-identities; it involves agency; and it implies both person and context" (p. 112). According to Kelchtermans (2005), the dynamic sense of identity can be termed as pre-service teachers' self-understanding involving questions like 'who am I as a teacher at this moment and who do I want to become as a teacher' (p. 996).

Correspondingly, pedagogy of teacher education, theories or beliefs about how to prepare future teachers for the teaching profession is an area still studied on (Tickle, 2000). McDermott (2002) identifies teacher education institution as an effective tool for examining pre-service teacher beliefs and identities. To signify the importance of teacher education, McDermott (2002) states: "it is a different way of constructing teacher identity because collage invites conversations regarding identity representation within pre-service teacher education classes" (p. 56). According to Mullen (1999), classrooms are democratic sites for educational transformation, so the

attitude towards pre-service teacher education can affect "the struggles and rewards of engaging pre-service teachers as they construct and critique their own self-identities" (p. 149). This process contains different knowledge sources such as "students' personality, their family or significant others, their teaching practice experiences, the policy context, teaching traditions and culture" (Surgue, 1997, p. 213). As a consequence, student teachers are "active players in the process of their own professional development" (Schepens, 2009, p. 362). Freire (1998) reminds us that "the key is not to transfer knowledge but to create possibilities for the production or construction of knowledge" (p. 22). Then, the pedagogy of teacher education must help prospective teachers 'become' good teachers in personal and professional development instead of focusing on teaching them to 'know' about teaching (Kothagen, 2004: 79). In order to present various levels of personal and professional change, Korthagen (2004) offered 'the onion-model' (see Figure 2.1.3.1).

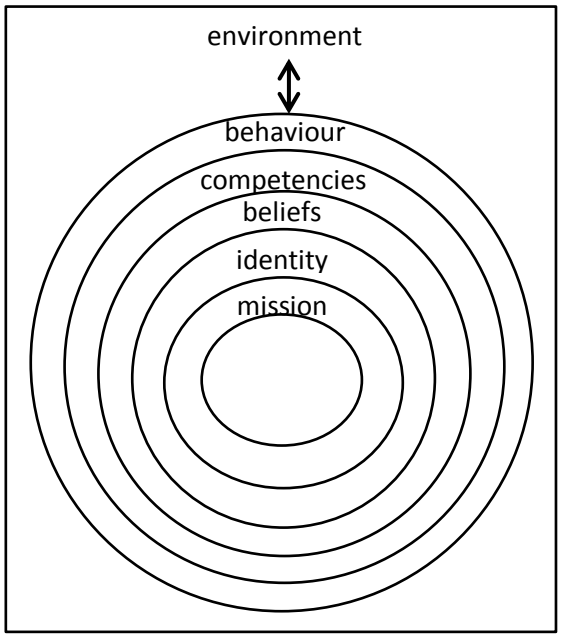


Figure 2.1.3.1. Levels of personal and professional change in teacher education

According to this model, teacher education is not only about changing behaviour, competencies or beliefs, but also it should profoundly focus on pre-service teachers' identity and their mission as teachers (Korthagen, 2004). Accordingly, the concepts of teacher identity and mission are urged on because they are a part of the centre, and inner and outer levels of change mutually influence one another. In Dilts's (1990) study, similar stages were introduced: 'where am I' (*environment*), 'what am I doing' (*behaviour*), 'what can I do' (*capacities or*

competencies), 'where do I believe in' (*beliefs*), 'who am I' (*identity*) and 'what do I want' (*mission*).

In Alspup's study (2004), the pre-service teachers with a strong sense of personal identity and their professional identity were able to transit into the profession. According to this study, if student teachers cannot carry out this transition, they either do not want to start service or experience future professional identity crisis. In their review, Wideen, Mayer-Smith, and Moon (1998) state that "successful teacher education programmes in which professional identity formation takes place not merely *change* but *build upon* student teachers' beliefs by making use of consistent support of teacher educators during institutional meetings as well as of cooperating teachers during teaching practice periods" (p. 167). In another study, Goodson and Cole (1994) report that student teachers' notions of the broader professional community have an impact on their sense of professional identity. However, it is important to note that there may occur a conflict between pre-service teachers' professional identity and other sub-identities during teacher education and teaching practice, and this conflict is called 'the theory practice gap or practice shock' (Volkmann & Anderson, 1998; Kelchtermans & Ballet, 2002a). If they do not experience this practice shock as identity achieved teachers, they become more enthusiastic with their work so they can contribute to a better quality of life and profession.

2.1.3.1. Teacher education programmes and pre-service teacher identity development

As it was previously stated, recent literature in teacher education confirms the importance of identity development (Britzman, 2003; Riopel, 2006; Hoban, 2007), but whether this is recognized in teacher education programme design and activities is questionable.

> Developing an identity as a teacher is an important part of securing teachers' commitment to their work and adherence to professional norms… the identities teachers develop shape their dispositions, where they place their effort, whether and how they seek out professional development opportunities, and what obligations they see as intrinsic to their role (Hammerness, Darling-Hammond, & Bransford, 2005, p. 360).

Yunus et al. (2012) state that education system should not produce "teachers who are still unclear of who they are or what they want to be" (p. 148). That is why future teachers should be teacher identity achieved, at least before they start teaching at schools because deciding the subject area and choosing to become a teacher is a serious decision (Yunus et al., 2012). However, in teacher preparation programmes, the development of teacher identity may not be intentional as identity may not always be an explicit part of the plan for teacher development (Beauchamp & Thomas, 2009). Students' understanding themselves and their practice must be key requirements for becoming teachers, which are actually components of teacher identity development.

> The construction of the real, the necessary and the imaginary are constantly shifting as student teachers set about to accentuate the identities of their teaching selves in contexts that are already overpopulated with the identities and discursive practices of others… Within such contexts, where desires are assigned and fashioned, student teachers strive to make sense and act as agents in the teacher's world. Indeed, much of their time is taken up with negotiating, constructing, and consenting to their identity as a teacher (Britzman, 2003, p. 221).

In a case study, Vanhulle (2005) focuses on the need for emphasizing individual identity in the education of a teacher. There are challenges for prospective teachers through their teacher education as they have to deal with the shifting conceptions of what teaching is and have to become the agents of their own identity development (Beauchamp & Thomas, 2009, p. 180). Lipka and Brinkthaupt (1999) remark that it is required that teacher educators should help prospective teachers even up their personal development and their professional development. It is teacher education programs' responsibility to create opportunities for the exploration of new and developing teacher identities (Beauchamp & Thomas, 2009). Bullough (1997) highlights the importance of teacher education in identity formation of beginning teachers by saying:

> Teacher identity – what beginning teachers believe about teaching and learning and self as-a-teacher – is of vital concern to teacher education; it is the basis for meaning making and decision making. Teacher education must begin, then, by exploring the teaching self (p. 21).

Freese (2006) suggests that student teachers can discover their 'teacher selves' through reflection and practice. Students in teacher education programmes should question themselves and their beliefs to challenge their identities in teaching contexts (Smagorinsky et al., 2004). Korthagen (2004) emphasizes that "fundamental changes in teacher identity do not take place easily" (p. 80). Identity change is a difficult and sometimes painful process, and often there seems to be little change at all in how teachers view themselves. Within this context, Danielewicz (2001) lays emphasis on the impact of the pedagogy adopted within teacher education programs on students' identity development. However, most of the teacher education programmes only focus on the acquisition of the knowledge by limiting the education with state educational standards, lesson planning, etc. instead of holistic pedagogies (Alspup, 2004). With a more school-based teacher education program, it was observed that students could examine their teacher identities closely and got into interaction with the context, which may affect the shaping of identity (Hopper & Sanford, 2004; ten Dam & Blom, 2006). In line with this, Riopel (2006) links the work of teachers to what happens in early practice by suggesting an alternative research on the exploration of "the relationship between success and failure in beginning practice and the preparation provided previously in a teacher education programme" (p. 18).

> A teacher education programme seems to be the ideal starting point for instilling not only an awareness of the need to develop an identity, but also a strong sense of the on-going shifts that will occur in that identity. In order to anticipate the reshaping of professional identity that will come, we must continue to consider the situation of teachers in the early years of practice, where the influence of their surrounding context – the nature of the educational institution, teacher colleagues, school administrators, their own students and the wider school community – is strongly felt. We must then try to incorporate what we know about the contexts and communities and their influence on the shaping of teacher identities into our teacher education programmes to prepare new teachers for the challenges of developing strong professional identities in positive ways (Beauchamp & Thomas, 2009, p. 178).

The research conducted by Darling-Hammond, Chung, and Frelow (2002) indicate that although professional identity formation is assumed to be a personal process, teacher education makes a difference because teacher education programmes are various, and the graduates of some programmes feel better prepared.

In line with this, teacher education experience must be reshaped by combining the alternative shapes with traditional ways by allowing for deep consideration of the identity in relation to educational contexts (Hoban, 2007). Under these circumstances, it can be said that the present teacher education programmes do not provide a satisfactory evaluation of the total preparedness of our pre-service teachers because applied assessments ignore holistic issues of identity. Therefore, teacher educators at universities should care about research on teachers' professional identity formation so that they can determine how they should support student teachers to become and understand themselves as teachers (Volkmann & Anderson, 1998; Korthagen, 2004; Tigchelaar & Korthagen, 2004).

CIPP (Context, Input, Process and Product) is a theoretical framework employed to evaluate the effectiveness of teacher education programmes by enabling a better interpretation of the overall picture. Schepens et al. (2009) analyse the prospective teachers' identity formation by making use of the CIPP-model (see Figure 2.1.3.2). They investigate the sources of professional identity formation such as graduates' demographics and personality traits, their motivation towards teacher education and the support and guidance that the graduates received during teacher education, and they expect that the professional identity formation of student teachers during teacher education will result in self-efficacy, professional orientation and teaching commitment at the moment of graduation.

CONTEXT **Teacher education (TE) in the Flemish community (Belgium)**		
Legal TE context: societal expectations toward beginning teachers i.e. the basic competences Type of TE: (1) TE institutes for higher education: TE preparing for pre-school, primary and the first stage of secondary education. (2) Academic TE at universities: TE preparing for upper stages of secondary education. (3) TE in adult education: TE preparing for technical/vocational skills in secondary education.		
INPUT **Entering TE**	**PROCESS** **During TE**	**PRODUCT** **Shortly after graduation**
Demographics	Faculty support	Teaching efficacy
Personality traits	Cooperating teacher support	Professional orientation
Motives to attend TE	Preparation for the teaching profession	Teaching commitment

Figure 2.1.3.2. Teacher education context (Schepens et al., 2009)

This figure shows (1) the teacher education context, (2) student teachers' personal identity indicated by demographics, personality traits and motivation at the start of teacher education, and (3) influences during teacher education represented by faculty support, cooperating teacher support and how teacher education prepared student

teachers for the teaching profession. Lastly, the model explores how these variables contribute to the professional identity formation resulted in self-efficacy, commitment and professional orientation.

In conclusion, we, as educators, must establish teacher education programmes which help our students have successful development of critical personal pedagogies and satisfying professional identities (Alspup, 2004). Alspup (2004) suggests some activities to facilitate professional teacher identity development in teacher education programmes. For example, pre-service teachers may be asked to provide narrative evidence for their pedagogical decisions to become aware of their classroom decisions by making comparisons with the past experiences. They can also compose reflective writings, role-play classroom scenarios, or videotape their teaching demos, which are contextualized. In that way, students can explore their teacher identity and their affective reactions to becoming a teacher. Moreover, pre-service students may be encouraged to create visual or text-based metaphors by making their implicit knowledge explicit.

2.2. NEED FOR COGNITION

In line with the learning theories, there have been significant developments in the field of cognitive psychology, especially in last 20 years (Savaşır & Batur, 1996). The starting point of cognitive psychology is the presence of cognitive processes and that individuals' processing the information actively. This process looks like the structure of how a computer processes the information, and it can be defined as *thinking*. Cacioppo and Petty (1982) investigated differences among individuals in their tendency to engage in and enjoy thinking. They labelled this characteristic '*need for cognition'* (NFC), where 'need' is used in the sense of a likelihood or tendency, rather than in a biological sense.

NFC has been studied a lot since its introduction to the literature (Cacioppo et al., 1996; Cacioppo & Petty, 1982; Cacioppo et al., 1984; Petty & Cacioppo, 1981, 1986; Chaiken, 1987; Sadowski & Cogburn, 1997). It has been conceptualized as a 'global aspect of thinking' (Osberg, 1987, p. 441) by belonging to the generic category of intrinsic motivation, but with a specific reference to cognitive efforts (and cognitively demanding tasks) as a source of enjoyment rather than deterrence, and individual differences in this regard (Cacioppo et al., 1996).

Cacioppo and Petty (1982) defined *need for cognition* as "the tendency for people to vary in the extent to which they engage in and enjoy effortful cognitive activities" (p. 119). Cacioppo and Petty (1982) conceptualized NFC also as "a personality construct that was developed to address individual differences in motivation for cognitive processing" and "an important individual difference related to the strength and stability of attitudes" (pp. 119-125). However, Gülgöz (1996) states that there is no concrete answer to whether NFC is a cognitive term or an attitude.

NFC varies on a bipolar continuum ranging from high to low. While some people enjoy being engaged with 'cognitively challenging activities', the others find the same tasks effortful and are relatively less motivated to deal with them. This disposition is explained with the difference in their level of need for cognition. People high in NFC enjoy thinking as it is a satisfying desire for them. On the other hand, people low in NFC prefer performing the act of thinking only when they have a reason for it; that's why, thinking can be a chore for these people. Therefore, NFC is defined as a cognitive motivation and behavioural tendency rather than pure intellectual capacity (Cacioppo & Petty, 1982).

NFC is also related to self-determination theory and the concept of intrinsic motivation (Cacioppo et al., 1996). Intrinsic motivation is defined as "the doing of an activity for its inherent satisfactions rather than for some separable consequence. When intrinsically motivated, a person is moved to act for the fun or challenge entailed rather than because of external prods, pressures, or rewards" (p. 199). (Ryan & Deci, 2000, p. 228). Cacioppo and Petty (1982) found that those individuals low in intrinsic motivation (*chronic cognitive misers*) and those high in intrinsic motivation (*chronic cognisors*) could be represented in terms of their NFC.

Most of the studies indicate that the increase of NFC motivates people to think about variety of things in addition to their own thoughts. As a result of this desired thinking, more enduring judgements are produced, which sometimes helps to avoid from common judgmental biases. Cacioppo et al. (1996) suggested that although everyone must make sense of their world, those who are high in need for cognition tend to "seek, acquire, think about, and reflect back on information to make sense of stimuli, relationships, and events in their world" (p. 199) while low

NFC individuals prefer not to engage in effortful and complex thought, so they are more likely to rely on less effortful peripheral cues, such as cognitive heuristics or the advice of others. "Individuals high in NFC tend to think more than those low in NFC about all kinds of information, including their own thoughts –metacognition-" (Petty et al., 2009, p. 15). Although they have some certain characteristics, individuals high in NFC can stop thinking deliberately under certain conditions, and those low in NFC can be motivated to increase the level of their thinking.

As mentioned before, according to Cacioppo and Petty (1982), NFC is a "stable individual difference in the tendency to engage in and enjoy cognitively effortful activities across a wide range of domains" (p. 116). Contrary to idea that NFC is a kind of source of energy that motivates behaviour, the research shows that NFC is only partly related to measures of cognitive ability (e.g., verbal intelligence) because the emphasis of NFC is on cognitive processing exploiting differences in motivation rather than ability (Cacioppo et. al., 1996), and it is an individual difference observed in attitudes, persuasion, judgement, decision making, and interpersonal and group interactions (Petty et al., 2009).

As NFC is a variable reflecting cognitive motivation not cognitive ability (Cacioppo et al., 1996), the studies conducted on it have revealed that individuals high in NFC have some distinctive features like: (1) being more curious than those low in NFC (Osberg, 1987); (2) trying to put more on the information gained from an experience (Sorrentino, Short, & Raynor, 1984); (3) looking for relevant information while performing a task (Berzonsky & Sullivan, 1992); (4) focusing on a task ambitiously (Osberg, 1987); (5) entertaining new experiences which energize thinking and the senses (Venkatraman, Marlino, Kardes, & Sklar, 1990; Venkatraman & Price, 1990); (6) being naturally motivated (Olson, Camp, & Fuller, 1984); (7) evaluating the responses (Jarvis & Petty, 1996); (8) being objective (Leary, Shepard, McNeil, Jerkins, & Barnes, 1986); and (9) being sensitive to problems and new information (Berzonsky & Sullivan, 1992; Venkatraman & Price, 1990).

According to Petty et al. (2009), "NFC affects the amount of thought that goes into a decision" (p. 22). Therefore, individuals high in NFC evaluate the available options before making a decision (Levin, Huneke, & Jasper, 2000) because

they look for alternative information prior to conclusion (Yang & Lee, 1998). Related to listening and information processing, NFC has been found to affect schema choice, recall, explanatory thinking, and inference-making (Cacioppo et al., 1986; Cacioppo et al., 1983; Lassiter, Briggs, & Slaw, 1991; Stayman & Kardes, 1992), and it is thought to assist in one's acquisition of knowledge (Tidwell, Sadowski, & Pate, 2000, p. 634). Cacioppo and Petty (1982) noted that individuals with a higher NFC are likely to consider a larger number of possibilities and to try out alternative hypotheses to make meaningful sense of situations.

2.2.1. Need for Cognition and Its Measurement

Petty and Cacioppo (1981, 1982, 1984, 1986) conceptualized NFC as "an important individual difference related to the strength and stability of attitudes." Since an appropriate measurement was not available after Cohen's original NFC measurement, Cacioppo and Petty (1982) created items stating 'individual tendencies to organize, abstract, and evaluate information'. The items are predictive of the manner in which people deal with tasks and social information (Cacioppo et al., 1984).

Although the first version of the NFC scale was a 34-item inventory developed by Cacioppo and Petty (1982), it was reduced to 18 items, and it was developed by ranking the 34 items from the original scale (Cacioppo & Petty, 1982) according to the value of factor loadings. Respondents indicate their agreement on a 5-point Likert-type scale ranging from extremely *uncharacteristic of me (1)* to *extremely characteristic of me (5)* to reflect how characteristic the statement is of themselves, and to rate the extent to which they agree with each of 18 statements about "the satisfaction they gain from thinking" (Sadowski, 1993, p. 452).

Half of the items are worded positively and half are worded negatively. Some examples of scale items are "I really enjoy a task that involves coming up with new solutions to problems"; "I feel relief rather than satisfaction after completing a task that required a lot of mental effort"; "I prefer complex to simple tasks" and "Thinking is not my idea of fun" (reverse scored). Past research on the scale shows that it yields one dominant factor. In addition to its good convergent and

discriminant validity (it is highly correlated with a scale about elaborated forms of thinking and judgement, but it is uncorrelated with social desirability), the scale has high internal consistency and test-retest reliability. The scale was found to be unrelated to (and unbiased by) respondents' level of test anxiety (Cacioppo et al., 1984; Sadowski, 1993; Sadowski & Gulgoz, 1992), and it was adapted in Turkish by Gülgöz and Sadowski (1996).

In his critique of the need for cognition, Heesacher (1984) praised the empirical construction of the scale, its convergent and divergent validity, and its internal consistency with a high theta reliability and a maximized Cronbach's alpha coefficient (.91; Cacioppo et al., 1984). After these meticulous studies, the Need for Cognition Scale was started to be used as an assessment instrument that quantitatively measures 'the tendency for an individual to engage in and enjoy thinking' (Cacioppo & Petty, 1982, p. 116).

Cacioppo and Petty (1982) stressed that they used the word 'need' in the statistical sense of a "likelihood or tendency" as people high in NFC indicate that they enjoy engaging in thinking about topics and are motivated to apply their thinking skills with little orientation. These people tend to be able to process information by differentiating the irrelevant from the important (Cacioppo & Petty, 1982, 1984). Sadowski and Gulgoz (1996) suggest that the ability to process information efficiently can be linked with greater academic achievement in an educational context. Furthermore, as Sadowski and Cogburn have shown (1997), individuals who have high scores on the Need for Cognition Scale tend to be more conscientious and more open to experiences than individuals low in NFC.

2.2.2. Studies on Need For Cognition

NFC has been studied in a wide number of areas such as psychology, sociology, survey research, advertising, media, law, and health, and over the years, studies have demonstrated the important role of NFC in explaining cognitive engagement, motivation, and learning. Researchers have used the 18-item Need for Cognition Scale in several settings to investigate the relationship between students' need for cognition and their academic performance (Tolentino, Curry & Leak, 1990;

Sadowski & Gulgoz, 1992, 1996), satisfaction with one's life under the impact of need for cognition and religious views (Gauthier, Christopher, Walter, Mourad, & Marek, 2006), how jurors' need for cognition influences their legal decisions (Bornstein, 2004), and how college students' need for cognition influences their self-reported satisfaction with their lives as a whole (Coutinho & Woolery, 2004).

NFC has been found to be *negatively* related to dogmatism (Cacioppo & Petty, 1982; Fletcher, Danilovics, Fernandez, Peterson, & Reeder, 1986); need for closure, closed mindedness, and preference for order and predictability (Petty & Jarvis, 1996; Webster & Kruglanski, 1994); need for structure (Neuberg & Newsom, 1993; Petty & Jarvis, 1986); and the tendency to avoid, ignore, or distort new information (Venkatraman & Price, 1990). On the other hand, NFC has been found to be *positively* associated with the tendency to generate complex attributions for human behaviour (Fletcher et al., 1986); continuous attention to an on-going cognitive task (Osberg, 1987); curiosity (Olson et al., 1984); objectivism (Leary et al., 1986); desire for new experiences (Venkatraman & Price, 1990); tendency to seek, evaluate, and use relevant information for decision making and problem solving; and openness to ideas, actions, feelings, and values (Berzonsky & Sullivan, 1992).

Moreover, studies show that individuals with a higher need for cognition recall greater amounts of information to which they have been exposed (Cacioppo et al., 1983; Heslin & Johnson; 1992; Kassin, Reddy, & Tulloch, 1990; Lassiter et al., 1991); pay more attention to the quality of information available (Cacioppo & Petty, 1982; Cacioppo et al., 1986; Cacioppo et al., 1983); generate a higher number or proportion of issue/task relevant thoughts (Axsom, Yates, & Chaiken, 1987; Verplanken, 1993; Verplanken, Hazenberg, & Palenewen, 1992); make thoughtful judgments (Verplanken, 1989); possess knowledge on a variety of issues (Ahlering, 1987; Cacioppo et al., 1986; Condra, 1992); and perform better in various cognitive tasks such as arithmetic (Dornic, Ekehammar, & Laaksonen, 1991), anagrams (Baugh & Mason, 1986), and college course work (Leone & Dalton, 1988; Sadowski & Gulgoz, 1992).

Since its introduction, the concept of NFC has been examined in a wide variety of areas, one of which is 'theories of judgement', a popular topic in social

psychology. For example, the elaboration likelihood model (Petty & Cacioppo, 1981, 1986), the heuristic systematic model (Chaiken, 1987), and other dual-process theories (Chaiken & Trope, 1999) put forward that some judgements are made thoughtfully with a deep analysis of the information presented, while some of them were based on a more superficial analyses. In these studies, NFC was used as a way to determine the mechanism by which individuals' judgements would be formed or changed. Namely, individuals low in NFC rely on simple cues and stereotypes in a persuasion situation or when judging other people while individuals with high NFC analyse all of the related information (Haugtvedt, Petty, & Cacioppo, 1992; Carter, Hall, Carney, & Rosip, 2006; Wegener, Clark, & Petty, 2006).

Studies on persuasion psychology do research on different variables producing changes in individuals' beliefs and attitudes. In line with this, as an indication of effortful thinking, people high in NFC tend to deeply analyse the relevant information in a persuasive message (Chang, 2007). Contrary to people high in NFC, individuals low in NFC are easily affected by factors such as the attractiveness (Haugtvedt et al., 1992), credibility of the message source (Priester & Petty, 1995; Petty, Brinol, & Tormala, 2002; Kaufman, Stasson, & Hart, 1999), the appearance and frame of the message (Chatterjee, Heath, Milberg, & France, 2000; Smith & Levin, 1996; Zhang & Buda, 1999), and their own emotional states (Brinol, Petty, & Barden, 2007; Petty, Schumann, Richman, & Strathman, 1993).

The following section gives a summary of some example studies on NFC:

- Studies on metacognition show that confidence in mental content is more important for individuals high rather than low in NFC (Petty, Brinol, Tormala, & Wegener, 2007).
- In the domain of survey research, it has been concluded that individuals high in NFC provide more thoughtful survey responses and are more accurate in their answers (Krosnick & Petty, 1995).
- People high in NFC experience lucid dreams (awareness that one is dreaming) more than the people low in NFC because people high in NFC are aware of their thinking while engaging in more thinking (Blagrove & Hartnell, 2000; Patrick & Durndell, 2004).

- In their study, West, Toplak, and Stanovich (2008) reported that need for cognition and open-minded thinking predict critical thinking. Results indicate that need for cognition is moderately associated with *the content listening style* such that participants with higher need for cognition scores exhibit a higher preference for content listening (Worthington, 2008).
- Petty et al. (2009) propose that although individuals high and low in NFC can have the same judgements on the same variables, the mechanism of impact is often different, such as biasing thoughts or validating thoughts. For instance, Petty et al. (1993) observed the participants viewing a commercial for a pen which induced either happy or a neural affective state. Favourable attitudes toward the pen occurred in both groups (high and low in NFC) when they were happy. Despite the similar attitudes, participants' emotion worked differently. Participants high in NFC had biased thoughts, while participants low in NFC had more favourable attitudes in a happy state without affected thoughts.
- Studies conducted on the differences between individuals high in NFC and low in NFC found a "correlation between lower NCS scores and greater anxiety about tests, grades, and performing in front of others, college life, and same and opposite-sex friends" (Cacioppo & Petty, 1984).
- According to Srull, Lichenstein, and Rothbart (1985), individuals who differ in their need for cognition also differ in their learning style.
- Perlini and Hansen (2001) claimed that those low in NFC would be more susceptible to halo effect which is a phenomenon in which people rate attractive or likeable others as superior on a variety of other trait dimensions.
- Crawford and Skowronski (1998) conducted a study on stereotyping and NFC, and participants were presented with a hypothetical criminal case in which a person with an ethnic background was guilty. Both individuals low and high in NFC were biased by the ethnicity, but in different ways. While the participants low in NFC judged the defendant with ethnic stereotype, those high in NFC relied on their analysis of the crime details by avoiding an overall bias.
- Studies on NFC conducted in psychology and law has indicated that legal judgements are affected by the differences in the amount of thinking between those high and low in NFC (Sargent, 2004; Leippe, Eisenstandt, Rauch, &

Seib, 2004). For example, individuals high in NFC are more likely to correct for perceived biasing agents in a trial (Sommers & Kassin, 2001; Wegener, Kerr, Fleming, & Petty, 2000).

- Cacioppo (1986) also found that high NFC subjects thought more about the elections, had more information about the candidates, and showed a stronger relationship between their attitudes and their voting behaviour than did low NFC subjects.
- Researchers have also found that need for cognition has an impact on ethical decision making (Boyle, Dahlstrom, & Kellaris, 1998; Singer, Mitchell, & Turner, 1998), price acceptability (Suri & Monroe, 2001), and extent of normative influence (Areni, Ferrell, & Wilcox, 2000).
- One of the more recent studies was by Dai and Wang (2007) who investigated the role of NFC in text comprehension and its role in the development of situational interest. Their study found a positive significant correlation between NFC and text comprehension in three topic areas (narrative, biology, and geology).
- Empirical research has shown that need for cognition is related to curiosity (Osberg, 1987) to the desire to maximize information gained from an experience (Sorrentino et al., 1984), and to seeking out and elaborating on relevant information when performing a task (Berzonsky & Sullivan, 1992).
- Nair and Ramnarayan (2000) found that people with high need for cognition experience more success in solving problems, collect information and make decisions on diverse aspects of the problem, and face fewer crises during the process.
- There is a significant positive direct relationship between NFC and the big-five domains of personality, openness to experience and conscientiousness, in correlation with the conceptualization of NFC as the tendency to enjoy and engage in effortful thought (Sadowski & Cogburn, 1997).
- In their correlational analysis, Tidwell et al. (2000) found that participants' NFC scores were positively correlated with verbal ability and knowledge in addition to the contribution of NFC to the acquisition of knowledge.
- In addition to recalling greater amount of information they have been exposed to and possessing knowledge on variety of issues, people high in NFC pay more attention to the quality of information (Petty et al., 2009).

- Study conducted by Gallagher (2012) supports that individuals high in NFC reported lower levels of depressed mood at work.
- Feist's study (2012) confirms that the personality dimensions of openness to experience, conscientiousness, and introversion as well as the cognitive style and need for cognition predict level of interest in science.

2.2.3. The Role of Need For Cognition in Education

Since cognitive psychology investigates the cognitive processes, education is a natural applied field of it (Sadowski & Gülgöz, 1996). Cacioppo et al. (1996) reflected that NFC is "derived from past experience, buttressed by accessible memories and behavioural histories, manifest in current experience, and influential in the acquisition or processing of information relevant to dilemmas or problems" (p. 197). As education is a lifelong process, the level of NFC may have a crucial impact on it throughout a person's life. Although it is conceptualized as an individual difference, Njus and Johnson (2010) state that "this variable can change for people across time" as s/he experiences life events.

Educational researchers have naturally been interested in how students learn and what motivates them to learn within the academic context. For example, Ermakov and Yurkevithch (2013) studied the development of NFC by analysing the theoretical approaches to NFC, its dynamics and age-related characteristics in order to explain the link between the intensity of NFC in the process of schoolchildren's learning and the level of current and potential intellectual development of them. By the same token, Dickhäuser and Reinhard (2006) conducted a study on how need for cognition affects the formation of performance expectancies at school, and the results suggested that "NFC is an important variable influencing motivational processes, and should be included in models describing the relation between self-concepts and individual beliefs or behaviours" (Dickhäuser & Reinhard, 2006, p. 495). Moreover, Cacioppo and Petty (1984) suggested that the Need for Cognition Scale, in conjunction with such tests as college entrance examinations, could be invaluable as a diagnostic test of scholastic performance.

In many studies, it has been revealed that some internal factors such as personality (Fleischhauer, Enge, Brocke, Ullrich, Strobel, & Strobel, 2010) and self-

efficacy (Pillai, Goldsmith, & Giebelhausen, 2011) affect people's NFC. Furthermore, it has been indicated that there are also some external stimuli that have impact on one's NFC. Among those, academic achievement (Sadowski & Gulgoz, 1996), social interaction (Curseu, 2011), organization of learning environments, and the influence of teachers can be considered as the main determinants of students' NFC. Likewise, in Garipağaoğlu, Kılıç, and Çoşkun's study (2012), NFC varies with respect to students' study year, their frequency of doing search for their own sake and career planning.

High NFC individuals "naturally tend to seek, acquire, think about, and reflect back on information to make sense of stimuli, relationships, and events in the world" and have "active, exploring minds" (Cacioppo et al., 1996). As a result, they are better in course performance particularly when mastery of the course material requires effortful thought (Bertrams & Dickhäuser, 2009). Since individuals high in NFC tend to seek out and elaborate on information by engaging in effortful cognitive processes, Cacioppo et al. (1996) asserted that NFC can be related to measures of ability although it is independent from ability. According to his studies, it can be said that those high in NFC should possess more knowledge (the amount of correct factual information that one possesses regarding particular topics) and should be more skilled at using their cognitive abilities like thinking. Although it is modest, there is a positive correlation between NFC and knowledge (Ahlering, 1987; Cacioppo et al., 1986; Condra, 1992; Martin, Ward, Achee, & Wyer, 1993). In accordance with this idea, research has revealed that NFC is positively correlated with verbal intelligence (Cacioppo et al., 1986), American College Test Scores (Cacioppo & Petty, 1982), high school and college GPA (Petty & Jarvis, 1996), grades in academic courses (Sadowski & Gulgoz, 1992), and performance on recall and problem solving tasks (Baugh & Mason, 1986; Dornic et al., 1991).

Students high in NFC seek out information, think about it and reflect on it to make sense of the information by using a deep approach while students low in NFC focus on rote learning and other heuristics by using the surface approach (Evans, Kirby, & Fabrigar, 2003). College students high in NFC expressed greater life satisfaction than students low in NFC (Coutinho & Woolery, 2004). As a predictor of life satisfaction among college students, high levels of NFC make college students capable of comprehending material, which requires cognitive effort, in a better way,

so they have better grades (Leone & Dalton, 1988). According to Cheung (2000), studying promotes life satisfaction among college students. As the ability of comprehending effortful material and processing information effectively are important parts of studying, students high in NFC display high life satisfaction because they enjoy studying, and they are more proficient at it. As the results of the study suggest, "students who enjoy intellectual challenges are most likely to be satisfied with life while they are in college" (Coutinho & Woolery, 2004, p. 203).

Despite the fact that NFC has attracted substantial attention from scholars in psychology and many other fields, little attention has been devoted to studying the role of NFC in the context of teacher training. It is assumed that universities, as the source of academic studies, are oriented to research and thinking, and the students of these institutions are apt to thinking and enjoy this situation. Especially, the students at education faculties are assumed to enjoy thinking as they will be the ones fostering thinking in their future classes. Teacher training must focus on not only quantitative concerns but also qualitative concerns. Just deep field knowledge must not be the main focus of teacher training (Temel, 1987).

One of the most important priorities of education is to raise individuals who can overcome the problems in the future, and society needs productive teachers who can think efficiently, criticize, and raise our children who are the keystones of our future. Without taking notice of the intelligence, teachers can make use of lots of opportunities in order to help students improve their thinking skills. A teacher should have excellent command on his/her field though it is not enough to improve students thinking skills. In addition to field knowledge and problem solving skills, there should be other ways formed prompting thinking power (Kazancı, 1989).

2.2.4. The Role of Need for Cognition in Teaching

In today's developing world, the amount of information is increasing while some of it becomes worn out. This situation helps to form teachers who look for information, know where and how to find it, and research instead of supporting teacher oriented instruction in which teacher is the only source of information. In this concept, the ideal teacher does not give up learning and helps his/her students reach the information actively. Therefore, the innovations in our era require upbringing a

certain type of teacher who is capable of flexible thinking, more prospering, and more active in life because teacher is one of the most important variables of teaching and learning environment. That's why, s/he should be able to renovate knowledge and skills.

The major change in the role of a teacher, who has been trying hard not to get out of date, was when it was understood that teacher is not the only source of information. Therefore, a teacher should improve his/her knowledge by using different sources and should create a developing and renewed teaching-learning environment with different methods by sharing it with the students and the colleagues. Furthermore, s/he should present model behaviour according to the society's and students' various and changing needs and should be a role model who can get over the personal difficulties and also can find multiple solutions for society problems. In short, a teacher must know that his/her role is not only implementing teaching and learning in classrooms but also turning the school and its environment into appropriate education setting (Oktay, 1998).

A good teacher is both up-to-date and prudential, and the condition of being a good teacher lies in today. The impulsion to reach from today to the future is formed with thinking and explaining thoughts. By doing this, a good teacher can go beyond the routine and get through to humanity. As a result, good teacher is the one who can make thinking and productivity something to be thought about and can teach how to do it (Açıkalın, 1988).

Gallagher (2012) states that

> ESL practitioners in the seventies and eighties have attempted to take into account students' communicative needs (functional/notional syllabus design, English for Specific Purposes, etc.) as well as their affective needs (humanistic techniques, counselling learning, suggestopoedia, etc.) with some success. There is increasing concern, however, that students' *cognitive* needs are not receiving enough attention (p. 535).

It is clear that education systems need teachers who seek out and elaborate on information by engaging in effortful cognitive processes. With such an inclination, they can reach an ideal position in their profession. A teacher with the features of a high NFC individual can easily foster effective teaching and learning by also encouraging his/her students to enjoy cognitive processes.

In consequence, individuals are obviously expected to be equipped with various kinds of knowledge and skills that enable them to adapt the changes and

improve the quality of their lives. High thinking skills are required during this process. NFC as one of these high thinking skills should be aimed to be developed during the school years. Therefore, teachers' roles are vital in the improvement of high thinking skills and students' level of need for cognition (Garipağaoğlu et al., 2012).

2.2.5. Need for Cognition and Teacher Identity Development

As previously mentioned, the stage of identity versus role confusion is the most important psychosocial crisis of the adolescent years (Erikson, 1963). Adolescents try to find an integrated sense of self by identifying their roles, values, talents, and beliefs during the transition from childhood to adulthood. In that way, they struggle to have a cohesive and unique sense of who they are. As a matter of course, young people are concerned with a comparison between "what they appear to be in the eyes of others" and "what they feel they are" (Erikson, 1963, p.261). If they can manage to reach *identity achievement* with a successful resolution, they will attain a person's own identity. However, if they fail at this stage by leading confusion or diffusion, they cannot gain a cohesive sense of self.

Developmental process does not stop here but continues throughout a person's life, and people get exposed to some common issues with which they deal with individually in this process. In their study, Njus and Johnson (2010) examined the hypothesis that psychosocial identity development is related to NFC. They administered 2 measures of psychosocial identity (EOMEIS-2; Adams, Bennion, & Huh, 1989; and EPSI; Rosenthal, Gurney, & Moore, 1981) and the NFC scale. Their study signified that people with higher psychosocial identity levels had higher NFC scores at both time periods, which provide support for "the importance of a cognitive and motivational individual-difference variable in the development of a unique and cohesive identity" (Njus & Johnson, 2010, p. 645).

> NFC, then, is conceptually linked to identity development. As previously mentioned, the moratorium process involved in acquiring an achieved identity entails a search among various roles and possible selves to find a unique, cohesive self. NFC should facilitate this search process in that high NFC individuals should be more likely to think about and explore aspects of identity sooner than should low NFC individuals. In other words, the normal developmental process of identity achievement should occur and be accomplished

> sooner in those inclined to do the kind of high NFC exploring that is part and parcel of the moratorium process (Njus & Johnson, 2010, p. 646).

Correspondingly, Berzonsky and Sullivan (1992) found a relation between NFC and social–cognitive aspects of identity style by indicating that NFC was positively correlated with an *information-oriented* cognitive style (seeking, elaborating on, and using relevant information to make decisions), and it was negatively correlated with the *diffuse–avoidant* cognitive style (a reluctance to face up to problems and conflicts).

With regard to studies stated above, Borg (2006) defined teacher cognition as "the networks of *beliefs*, *knowledge*, and *thoughts* about their profession" (p. 38). Before the studies on teacher cognition started in 1990s, studies on teaching mostly focused on behaviourist and normative models of teaching which took teachers' observable behaviours and actions and learning outcomes as basis. With the introduction of teacher cognition research, there was a conceptual and methodological shift which provided a more holistic and comprehensive approach to the study of teaching (Sanchez, 2013).

For example, low NFC individuals have relatively little motivation for cognitively effortful tasks. Thinking can be a chore for them, and they get engaged mostly only when an incentive or a reason is present (Petty et al., 2009). However, if they want to have an ideal teaching career, pre-service teachers need to focus on their cognitive representations of their ideal, ought to, and feared selves as prospective teachers. If formation of teacher identity is conceptualized as a 'learning process' (Tütüniş, 2012), prospective teachers must be more active in this process by engaging in and enjoying effortful cognitive activities while constructing their teacher identities. Therefore, teacher education institutions can provide reasons for a better construction of teacher identity for students low in NFC.

In Turkey, teacher training takes place in 4-year programmes. The participants of these programmes, namely prospective teachers, expected to complete the programme according to the standards of that training. Although candidate teachers might complete these programmes with a high GPA, they may not be aware of what becoming a teacher entails, how teaching and learning are related and what their responsibilities are. Furthermore, they may not have an intrinsic motivation to think thoroughly about issues related with their profession or about life.

However, for a qualified education system, they must feel a concern about becoming a teacher. This concern will make them to read or investigate more about teaching and learning. In that way, they may have a tendency to engage in effortful thinking about educational problems and possible solutions. As the emphasis on the concept of NFC is process oriented rather than outcome oriented (Cacioppo et al., 1996), teacher training programmes should provide opportunities for pre-service teachers throughout their study years to be aware of their level of need for cognition and to increase it if it is low.

2.2.5.1. Need for Cognition in Teacher Education

As a significant point of high need for cognition level, individuals high in NFC engage in metacognition by thinking about their thoughts (Petty et al., 2007), and they keep evaluating their thoughts for validity, a process called 'self-validation' (Petty et al., 2002). People high in NFC are aware of the thinking process that they put into their judgements, and as a result they become more confident about their opinions than individuals low in NFC (Barden & Petty, 2008), which is a desired situation to have firm steps in teaching profession.

However, past studies suggest that when the social context requires it, lower NFC individuals engage in effective thinking with the help of some incentives; for instance, when the issue is important or surprising, or when they cannot rely on a salient cue, and they do engage in as much mental effort as higher NFC individuals (Priester & Petty, 1995; Smith & Petty, 1996; Axsom et al., 1987; Priester, Godek, Nayakankuppum, & Park, 2004). Therefore, it can be expected that, with some guidance, low NFC individuals can turn into effective thinkers.

Although individuals high in NFC can easily get involved with the information, individuals low in NFC may need some motivating circumstances to accomplish this. For example, **(a)** when there is connection between the message and the recipient's self-concept (Brannon & McCabe, 2002); **(b)** when they receive the information in an entertaining or engaging way (e.g. using comic strips; Stephan & Brockner, 2007); **(c)** when there is personal relevance in the message (Axsom et al., 1987); and **(d)** when the message includes emotional contents (Vidrine, Simmons, & Brandon, 2007; Haddock, Maio, Arnold, & Huskinson, 2008), they can get involved with the situation in a more effective way.

Accordingly, pre-service teachers can also be encouraged to be effective thinkers because inexperienced teachers start their professional life with positive and negative images of teaching (Sanchez, 2012). The research indicates that teachers tend to replicate the teaching methods and strategies which they found effective or positive as learners and to reject those which they associated with negative experiences (Johnson, 1994; Numrich, 1996; Borg, 2005). Therefore, to foster pre-service teachers' NFC, instructors at teacher education programmes should be good models for their students. For example, "they should discuss an issue from different perspectives, make predictions and justify them, make interdisciplinary links, provide reasoning underlying the facts, relationships or formulas and give real life examples or applications" (Garipağaoğlu et al., 2012, p. 149). In this way, pre-service teachers can focus on their profession with a high need for cognition.

As can be expected, NFC appears to hold much promise in understanding trainees' pre-training attitudes and motivation toward training on complex tasks (Coutinho, Hastings, Skowronski, & Britt, 2005). If teacher education programmes adopt traditional teaching methods and do not allow students to question the reliability and validity of arguments and do not ask for their own reasoning, prospective teachers cannot get prepared for the requirements of their future profession. "That is about educating people who can *think for themselves*. If the teachers themselves cannot think, it would be hardly possible to expect their students to *think for themselves*" (Garipağaoğlu et al., 2012).

> Fostering critical argumentation in the classroom is part of a more general project of creating intentional classroom environments focused on learning and thinking for understanding. Fostering such environments may require explicit attention to a theoretically and empirically grounded framework of individual differences that affect students' disposition to engage in or avoid arguments. In this way, theory can help advance our understanding of how to foster better student engagement with intellectual ideas (Nussbaum & Bendixen, 2003, p. 575).

On this account, the nature and content of teacher education courses are really important because they may have influence on pre-training beliefs (Sanchez, 2013). Therefore, trainees should see theory applied in practice (Hayes, 2005). Many studies (e.g. Sendan & Roberts, 1998; Cabaroglu & Roberts, 2000; Mattheoudakis,

2007) signify that teacher training programmes should focus on not only the content but also the structure of 'student teacher thinking'.

Since one of the most important principles of education is to construct teaching and learning environments based upon individual differences among which there exists NFC, determining the individuals' level of NFC is crucial while forming the education environment (Tok, 2010) because NFC is a term including the competences necessary for teaching profession. Therefore, pre-service teachers' level of NFC must be taken into consideration so that necessary arrangements can be done in the organization of teacher training education. Bearing these in mind, determination of pre-service teachers' NFC level may help them to construct a better pre-service teacher identity, which will lead them in their future careers. Thus, in this study, the relationship between pre-service teachers' early teacher identity and their need for cognition will be investigated in order to lay much stronger foundations in teacher training education.

In her study, Tok (2010) asked for pre-service teachers' own opinions on the importance of thinking, and participants mostly agreed on the importance of thinking for the continuance of life and being a part of that life. In order that pre-service teachers can develop their thinking with a more professional conceptualisation of teaching, teacher education programmes should build on pre-service beliefs and encourage pre-service teachers to reflect on their validity (Holt-Reynolds, 1992). In Bailey's (1996) study, teachers-in-training were included in autobiography tasks in which they found a chance to articulate their teaching beliefs and discover the rationale behind them, and by looking at their reflections upon their schooling experiences, it was concluded that trainees must engage in teaching practice and subsequent introspective work. Some institutions have started actively combining these in teacher training programmes. For example, pre-service teacher education programmes in some countries such as Switzerland (primary and secondary levels) and Argentina (undergraduate L2 teacher training) include teaching practice along with self-evaluation and reflection tasks.

According to Heppner, Reeder, and Larson (1983), the individuals low in NFC are subject to more cognitive stress because they are less effective in problem solving. Therefore, it is crucially important that teacher training programmes should orient the prospective teachers towards activities based on thinking and make them believe that they can easily do these activities. Providing opportunities for thinking in

teacher training programmes is thought as a must as Oktay and Unutkan (2008) signify that the most important necessity of education is to raise teachers thinking critically, doing research with ethics, shaping the knowledge, and effective in problem solving. In accordance with this idea, in higher education, faculty can create classroom environments that are supportive of a variety of student types high and low in NFC by providing a meaningful and engaging classroom environment for all students (Tinto,1997; Chism, 2002). This must include providing the academic resources for success and also creating an open, supportive campus climate where students feel personally and academically supported (Chism, 2002).

To conclude, education should improve and foster thinking by forming an environment in which students can express themselves without pressure, teachers ask questions that help students think critically, individuals respect different ideas, and they all take advantage of this environment in their future careers (Paul & Elder, 2006; Costa, 2006). Promoting multifaceted and different thinking, encouraging voluntary act of thinking and making students feel confident about their own cognitive processes are significant factors while forming a teaching and learning environment for pre-service teachers. These points may help prospective teachers to build on their own thinking structures while forming their teacher identity.

CHAPTER THREE
METHODOLOGY

3.0. PRESENTATION

This study examines the relationship between pre-service teacher identity and need for cognition. This chapter presents the methodological details of the study. In the first section, the research design governing the study is introduced. Next, the characteristics of research population and sampling are presented. Later, the ways how data were collected and instruments are mentioned, which is followed by the methods to analyse the data.

3.1. RESEARCH DESIGN

The research design of this study is descriptive which is the exhibition of the characteristics of the chosen group comprehensively. In descriptive studies, the information gained from participants is revealed without any manipulation (Shuttleworth, 2008), and they aim to test whether the hypotheses are true or not, or try to find the answers to research questions by using questionnaires, interviews, observation or using several of these techniques together (Dörnyei, 2007). Vyhmeister (2008) defines descriptive research as a study describing one or more characteristics of a group of people and giving quantitative information as numbers and percentages. “Descriptive research deals with questions of *what* things are like, not *why* they are that way” (Dörnyei, 2007). Similarly, according to Koh and Owen (2000), a descriptive research study “is based on the premise that problems can be solved, and practices can be improved through observation analysis and description, and the most common method is the survey which includes questionnaires, personal interviews, phone surveys and normative surveys” (p. 38).

According to above citations, the current study is a descriptive analysis of the pre-service teacher identity levels of the students at Gaziantep University, Education Faculty and aims at finding its relation with students' need for cognition. The study will have two parts. The first part will deal with the adaptation of Early Teacher Identity Measure (ETIM) by Friesen and Besley (2013) in Turkish to investigate this scale's psychometric properties while the second part will focus on the students' early teacher identity and need for cognition profiles and their relations to each other and to some demographic qualities of the participants (i.e. gender, GPA, study year, department, schooling background, and teaching experience).

3.2. RESEARCH POPULATION AND SAMPLING

The target population of this study is students at teacher education programmes at universities around Turkey. As accessible research population, 1559 female and male students at teacher education programme at a state university in 2013-2014 academic years were chosen. The research data was collected with the selection of the sample which consists of the students studying at the Education Faculty (Departments of English Language Teaching, Turkish Language Teaching, Primary School Teaching, and Mathematics Teaching at Primary Education). This sample was selected through random sampling as a simple random sampling allows each member in the population an equal chance of being chosen (Ekmekçi, 1997). This method is the most convenient and preferable one, therefore it was selected for this study and expected to represent the whole population.

Table 3.2.1. Descriptive statistics for gender

Gender	**Frequency**	**Percent (%)**
Female	313	69.8
Male	136	30.2
Total	449	100

One of the demographic variables of research sample is gender. As can be seen in Table 3.1, the number of female participants is 313 (69.8 %), and the number of male participants is 136 (30.2 %).

Table 3.2.2. Descriptive Statistics for Departments

Department	Frequency	Percent (%)
English Language Teaching	53	11.8
Turkish Language Teaching	158	35.1
Primary School Teaching	116	25.8
Mathematics Teaching at Primary Education	122	27.1
Total	449	100

Departments of the participants are presented in Table 3.2.2, and the sample includes students from the departments of English language teaching (53; 11.8 %), Turkish language teaching students (158; 35.1 %), primary school teaching (116; 25.8 %), and mathematics teaching at primary Education (122; 27.1).

Table 3.2.3. Descriptive Statistics for Study Year

Gender	Frequency	Percent (%)
1st year	139	30.9
2nd year	127	28.2
3rd year	183	40.7
Total	449	100

As can be seen in Table 3.2.3, the participants were drawn out of three study years of education faculty. 139 (30.9 %) were 1st year; 127 (28.2 %) were 2nd year; and 183 (40.7 %) were 3rd year students.

3.3. INSTRUMENTS

"Early Teacher Identity Measure (ETIM)" (Friesen & Besley, 2013), adapted to Turkish by the researcher, was used to measure pre-service teacher identity of teacher candidates. The data related to the need for cognition were collected by "Need For Cognition Scale (NFCS)" (Cacioppo & Petty, 1982; adapted to Turkish by Gülgöz & Sadowski, 1996), the data related to attitudes towards teaching profession were collected by using "Attitude towards Teaching Profession Scale (ATPS)" (Çetin, 2006) and lastly, the data related to the personal information of the students were gathered by "Personal Information Form" which was designed by the researcher.

3.3.1. Early Teacher Identity Measure (ETIM)

The ETIM was developed by Friesen and Besley (2013). They benefited from self-categorization theory while conceptualizing teacher identity, and they defined professional teacher identity as a developmental and social psychological process. The scale consists of 17 items (e.g. "I often doubt if I am the right person to become a teacher", "I have confidence in my ability to one day be a good teacher") and is based on a 5-point Likert scale anchored from 1 (Disagree) to 5 (Agree). This scale was developed to measure the participants' perceptions of their early development of a teacher identity. Individual items were organized around three short subscales. They tested the subscale structure with a principal components analysis of 113 teaching students in their first year at university.

Self-categorization as a teacher was assessed with five items (*items 5, 8, 9, 10, 17*) that question participants' perception of themselves as a teacher. Sample items include, "I see myself as a teacher" and "I find it difficult to see myself in charge of teaching a group of children/adolescents".

Confidence in becoming a teacher was assessed with 6 items (*items 1, 3, 7, 11, 12, 16)* reflecting participants' confidence in their ability to develop the skills and resources necessary in order to be a successful teacher (Friesen & Besley, 2013). Sample items include, "I am satisfied with the progress I am making in my teacher education", and "I often doubt my ability to be a good teacher".

Finally, *Participation as a teacher* was assessed with 6 items (*items 2, 4, 6, 13, 14, 15*) and reflected "participants' tendencies to naturally get involved with children on their own accord and satisfaction in teaching or leading children" (Friesen & Besley, 2013). For instance, "I enjoy helping out with children's activities" and "Family and friends often look to me when it comes to caring for or working with children/adolescents".

Friesen and Besley (2013) subjected the teacher identity items to a principal components analysis to explore their underlying structure. Examination of the scree plot and factor loadings on the unrotated solution indicated a single factor structure with factor loadings across items ranging from .34 to .81 in addition to high internal reliability (α.87), and a varimax rotation method was also employed to distinguish the three subscales.

3.3.1.1. Adaptation of early teacher identity measure (ETIM) in Turkish

ETIM was adapted into Turkish and Turkish culture by testing its reliability and validity on a sample consisting of education faculty students by the researcher so that it could be used in this study.

With the increase in the interest in cross-cultural studies, the number of the adapted scales has increased. Especially, the adaptation studies in the fields of psychology and education have been increasing enormously (Hambleton, 1994; Hambleton & Kanjee, 1995; Hambleton, Yu, & Slater, 1999). The first adaptation studies started with Binet IQ Test (Hambleton & Kanjee, 1995) and the use of tests like TIMSS and PISA, which have been at the centre of the international studies. They have become widespread as they are used in 30 languages in cross-cultural studies (Hambleton et al., 1999). International Test Commission (2005) supported this increase in the adaptation studies and organized activities to improve the quality of these studies.

Another topic which must be clarified is using the term of 'adaptation study' not 'translation.' According to International Test Commission (2005), Scale Adaptation Committee, the term of 'adaptation' comprises the process in which a scale is prepared to be used in another culture and language in a more completed and extensive way; because of which they prescribe to use the term of 'adaptation' instead of translation. Besides, translation is always a stage among other procedures in adaptation studies (Geisinger, 1994; Hambleton, 1994; Savaşır & Şahin, 1997; Hambleton & Patsula, 1998).

In this study, ETIM was chosen to adapt in order to bring in a Turkish scale measuring pre-service teachers' teacher identity perceptions. Adaptation of a scale is a long and demanding process which takes shape with a lot of researchers' efforts (Akbaş & Korkmaz, 2007, p. 15). Since the scale is adapted from a different language, thereby a different culture, the translation must be in accordance with the original form. If the assessment tool is applied in a culture different from the one it was developed in, it must be adapted to that culture, too (Büyüköztürk, 1999). Adaptation process should include the adaptation of the options and the instructions apart from the adaptation of the items (Hambelton, Merenda, & Spielberger, 2005). According to Hambleton and Patsula (1999), researchers appeal to adaptation because of the following reasons:

- An adaptation study is easier, faster, and more economical than developing a new assessment tool.
- It is the most effective way to build up an equal test for language and culture in studies which are culturally and internationally compared.
- There is a shortage of specialists in the field to develop a new assessment tool.
- An adapted scale is relied on more than a newly developed scale.

Although it may look like that adaptation studies are easier and require less time than developing a new scale, it is a long process requiring a meticulous approach if appropriate methods are applied at true stages. It brings along the scientific responsibility as it will be used by other researcher if it is proper to use at the end of the adaptation process (Savaşır & Şahin, 1997). Bearing this in mind, all stages of an adaptation study are handled delicately in this study.

The national (Deniz, 2007; Savaşır & Şahin, 1997) and international (Geisinger, 1994; Hambleton, Patsula, 1998) pioneer studies about the adaptation, which have been supported by International Test Commission (2005), agree on the basic parts in an adaptation process. According to these studies, the first step of the adaptation is to investigate whether the concept which is aimed to be assessed is the same in the culture in which it was developed or in the culture into which it is aimed to be adapted. If this concept exists in the target culture, we must question whether it is feasible to adapt this scale or not (Hambleton & Patsula, 1999). For example, while the concept of 'life quality' may involve more materials (e.g. a car, a house, etc.) in a country, it may only mean basic needs like food and health services in another country. With this knowledge, the concept of 'teacher identity' was discussed in terms of its place in Turkish education and in international standards by the researcher and four experts in the field. It was concluded that this concept is comprehensive with the same attributions in Turkish culture as well, and the items of the scale can easily be integrated into culture of Turkish education system.

In the context of the study, it should be decided whether adaptation of the scale is more practical than developing a new scale (Akbaş & Korkmaz, 2007). The limitations of the adaptation study should be considered as much as its advantages. After deciding that the adaptation is suitable for this study, the first step was getting permission from the person who formed the scale. Therefore, the researcher got into

contact with the author of the scale to adapt the scale into Turkish for academic purposes.

One of the frequent problems occurring during the translation stage is using only one translator who can easily be contacted (Hambelton et al., 2005). The success of the translation mostly depends on the knowledge and experience, so finding two translators competent in both languages is not a solution. Translators should be closely familiar with two cultures (Deniz, 2007). In accordance with these ideas, four translators who are academicians in the field of English Language Teaching (at Kültür University, Başkent University, and METU) and are competent in both languages and familiar with these cultures translated the scale into Turkish separately. For the first step of the translation process, the linguistic validity of the scale in the target language is examined. In this study, the techniques of the one-way translation, post-translation questioning, group translation, and back translation were used.

A translation form (see Appendix A1 and A3) was prepared at the start of the translation process. In this form, the original items were written in an order, and there were separated blanks below each item for translation. At the bottom of the page, a 'suggestions' part was included so that the translators could state their notes and opinions. Translators worked independently without getting into contact with the other translators. At the next stage, researcher prepared a kind of presentation which included the original items with all offered translations from each translator (see Appendix A2 and A4). Each translation was coded as T1, T2, … etc. without giving the names of the translators. After that, with a video conference session, they compromised on the last version of the translated scale, and this last version was controlled by an English language instructor, from Gazi University, who is familiar with both cultures before starting back-translation.

Although it takes time, back-translation is the most preferred method in adaptation studies all over the world (Aksayan & Gözüm, 2004). There must be at least two translators in this method. While one of the translators translates the scale into the target language, the other one translates the translated scale back into its original language. In our study, as mentioned above, after the scale was translated into Turkish by four translators, three academicians in the field of English Language Teaching translated them back into the original language which is English. All translators worked independently and did not consult each other, but they came

together and discussed on the appropriate form of the translation after translation process was completed. If the translators strictly stick to grammar rules, the meanings in the original form may become meaningless sentences and idioms (Şeker & Gençdoğan, 2006). Thus, translators were informed about some important words, idioms and meanings in both languages. After revising the adapted form of the scale, the necessary changes were made and three experts from different fields (English Language Teaching, Turkish Language Teaching, and Educational Sciences) controlled the scale in terms of semantic equivalence, idiomatic equivalence, empirical equivalence, and conceptual equivalence by asking those questions (Hambleton & Patsula, 1999):

- Do words express the same things in both languages?
- Are the lexical items and idioms used in daily life same for both languages?
- Do lexical items and idioms in the adapted form give the same meaning with the original ones?
- Is the experience expressed in the original scale encountered in the target culture?
- Are the lexical items in the scale used in the same context in both languages?

After translation procedures, the scale was piloted with 20 students whose profile is similar to the target population. The students were from different departments at Gaziantep University. It was paid attention to select the students from different classes. During the pilot study, each item was read aloud one by one, and students' opinions were asked, and it was discussed what the statements mean, whether they are comprehensive or not, and how these statements can be improved. After that, participants were provided with an example of the scale so that they could examine it in detail and write their comments on it. With the completion of the pilot study, some items were arranged accordingly by consulting two academicians in the field of English language teaching and Turkish language teaching.

The next stage of the adaptation process was to determine the linguistic equivalence between the original form and the adapted form. One of the ways of finding the linguistic equivalence is implementing the scale with a group competent in both languages in short intervals to determine the correlation between two forms. With this, it is aimed to test consistency. It has been noticed that this method is not

always preferred in Turkey because it is difficult to find a group competent in both languages (Savaşır & Şahin, 1997; Hambleton & Kanjee, 1995).

With this aim, students at Department of English Language Teaching (ELT) were selected through convenience sampling as they are competent both in Turkish and in English. 53 ELT students participated in this stage of the study in 2013-2014 Spring Term. There were four weeks between the implementation of the original and adapted forms of the scale.

Data analysis was carried out by means of SPSS 20.0. The linguistic equivalence of the scale was identified through the calculation of Pearson correlation coefficient. The findings on the linguistic equivalence indicate that the correlation between the items included in Turkish and the original form varied between .84 and .96. Cronbach alpha internal consistency coefficient was calculated for reliability. It was .87 in the original scale, and it was found to be .91 in the adapted scale.

In the other stages of the adaptation in this study, a confirmatory and an exploratory factor analysis were conducted on the scale to reveal construct validity. First of all, a confirmatory factor analysis was conducted in order to examine the factor structure of Turkish version of ETIM and to find out whether the measurement tool is testing the same construct in Turkish language form (Çokluk et al., 2014). In this way, the validity of the model in the target culture was analysed. Although the results of CFA were either perfectly or adequately attained, the proposed model led us to conduct an exploratory factor analysis. Friesen and Besley (2013) developed ETIM consisting of three factors: *Self-categorization as a teacher, Confidence in becoming a teacher, Participation as a teacher*, but the present study suggests to use ETIM, based on the EFA results (see Table 4.2.5), as a one-factor scale by preserving its theoretical background. In order to test criterion validity, the correlation between Attitude towards Teaching Profession and Early Teacher Identity scales was calculated. The reliability of ETIM was tested through such coefficients as internal consistency, split-half and test retest. Furthermore, the item discrimination of the ETIM was calculated through the corrected item total correlation and a comparison between the top and bottom 27% groups. All detailed explanations and results about these analyses will be explained in the results and discussion part in chapter four.

3.3.2. Need For Cognition Scale (NFCS)

Petty and Cacioppo (1981, 1986) conceptualized NFC as "an important individual difference related to the strength and stability of attitudes." Since an appropriate measurement was not available after Cohen's original NFC measurement, Cacioppo and Petty (1982) created items stating 'individual tendencies to organize, abstract, and evaluate information'. They gave these items to groups expected to differ on NFC and identified items discriminating between the groups and resulted in minimal gender differences. "The items are predictive of the manner in which people deal with tasks and social information" (Cacioppo et al., 1984).

Although the first version of the NFC scale was a 34-item inventory developed by Cacioppo and Petty (1982), it was reduced to 18 items, and it was developed by ranking the 34 items from the original scale (Cacioppo et al., 1984) according to the value of factor loadings. Consistent with the findings of Cacioppo et al. (1984), principal components analysis indicated one dominant factor. Respondents indicate their agreement on a 5-point Likert-type scale ranging from extremely *uncharacteristic of me (1)* to *extremely characteristic of me (5)* to reflect how characteristic the statement is of themselves (Cacioppo et, al., 1984), and to rate the extent to which they agree with each of 18 statements about "the satisfaction they gain from thinking" (Sadowski, 1993). Half of the items are worded positively and half are worded negatively. Some examples of scale items are "I really enjoy a task that involves coming up with new solutions to problems"; "I feel relief rather than satisfaction after completing a task that required a lot of mental effort"; "I prefer complex to simple tasks" and "Thinking is not my idea of fun" (reverse scored).

Previous research on the scale shows that it yields one dominant factor. In addition to its good convergent and discriminant validity, (it is highly correlated with a scale about elaborated forms of thinking and judgment, but it is uncorrelated with social desirability), the scale has high internal consistency and test-retest reliability. The scale was found to be unrelated to (and unbiased by) respondents' level of test anxiety (Cacioppo et al., 1984; Sadowski, 1993; Sadowski & Gulgoz, 1992).

In his critique of the need for cognition, Heesacher (1984) praised the empirical construction of the scale, its convergent and divergent validity, and its

internal consistency with a high theta reliability and a maximized Cronbach's alpha coefficient (.91; Cacioppo et al., 1984). After these meticulous studies, the Need for Cognition Scale was started to be used as an assessment instrument that quantitatively measures "the tendency for an individual to engage in and enjoy thinking" (Cacioppo & Petty, 1982, p. 116).

Petty and Cacioppo (1981, 1986; Cacioppo & Petty, 1984) focused on NFC as an important individual difference related to the strength and stability of attitudes and stressed that they used the word 'need' in the statistical sense of a "likelihood or tendency" as people high in NFC indicate that they enjoy engaging in thinking about topics and are motivated to apply their thinking skills with little orientation. These people tend to be able to process information by differentiating the irrelevant from the important (Cacioppo & Petty, 1982, 1984).

Gulgoz and Sadowski (1995) adapted the scale to Turkish by suggesting that the ability to process information efficiently (high NFC) can be linked with greater academic achievement in an educational context. Their studies indicated that the internal consistency of the scale is .88 based on Cronbach's Alpha, and it has a test-retest reliability of r= .83 ($p<.01$). Factor analysis indicated that the same factor structure was maintained to a large extent. Furthermore, as Sadowski and Cogburn have shown (1997), individuals who have high scores on the Need for Cognition Scale tend to be more conscientious and more open to experiences than individuals low in NFC.

3.3.3. Attitude towards Teaching Profession Scale (ATPS)

Attitude towards Teaching Profession Scale (ATPS) was developed by Çetin (2006) to measure the attitude of the students at education faculty towards teaching profession. The items of the scale were created by getting the field experts' and teacher candidates' opinions. The scale is a likert-type scale consisting of 35 items. The validity and the reliability of the scale are based upon the data obtained from 341 participants selected via random sampling method among the senior students of the faculty of education. The result of the factor analysis indicated that factor loadings across items range from .48 to .80 in addition to high internal

reliability (α.95). Kaiser Meyer Olkin (KMO) value of the scale is 0,95. The findings indicate that the scale has a valid and a consistent structure. The analysis reveals that Attitude towards Teaching Profession Scale (ATPS) has three subscales –love, esteem, and harmony– which are three basic structures in teaching profession. The scale includes 15 reverse-coded items and 20 positively worded items.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0. PRESENTATION

This chapter presents the results of the statistical analyses of the data collected through the instruments given in the previous chapter (ETIM, NFCS, and ATPS). The first part of this chapter provides information on the descriptive analyses and reliability coefficients for the ETIM, NFCS, and ATPS. The second part will try to answer the research questions by using inferential analyses.

4.1. DESCRIPTIVE ANALYSES

The NFCS comprised of 18 items scored on a five-point Likert scale. The descriptive statistics for the NFCS are given in Table 4.1.1:

Table 4.1.1. Descriptive statistics for NFCS

	Statistic	**Std. Error**
Mean	64.33	.57
Median	66.00	
Mode	66.00	
Variance	146.38	
Std. Deviation	12.09	
Minimum	24.00	
Maximum	90.00	
Range	66.00	
Skewness	-.75	.11
Kurtosis	.44	.23

In this study, the minimum score, in terms of need for cognition, is 24 and the maximum score is 90. The total scores for NFCS changed from 24 to 90 with a range of 66.00; in addition to a mean of 64.33 and a standard deviation of 12.09. The mean (64.33), median (66.00), and mode (66.00) are quite close by exhibiting a normal distribution. The skewness and kurtosis values are in the acceptable limits because both values are less than 1, and their rate to standard error is between the limits of +/- 1.96. The Cronbach's Alpha is .90 for the NFCS.

Table 4.1.2. Descriptive Statistics for ETIM

	Statistic	**Std. Error**
Mean	65.57	.56
Median	68.00	
Mode	72.00	
Variance	142.71	
Std. Deviation	11.94	
Minimum	24.00	
Maximum	85.00	
Range	61.00	
Skewness	-.22	.11
Kurtosis	.38	.23

In Table 4.1.2, it is seen that the range for the total scores for the ETIM is 61 with a minimum of 24 and a maximum of 85. The mean is 65.57 and the standard deviation is 11.94. The mean (65.57), median (68.00), and mode (72.00) exhibit a normal distribution. For ETIM, the skewness and kurtosis values are in the acceptable limits. The Cronbach's Alpha is .93 after the factor analyses which will be explained in detail in the next part of this chapter.

Table 4.1.3. Descriptive Statistics for ATPS

	Statistic	**Std. Error**
Mean	137.38	1.18
Median	141.00	
Mode	72.00	
Variance	632.04	
Std. Deviation	25.14	
Minimum	55.00	
Maximum	189.00	
Range	134.00	
Skewness	-.70	.11
Kurtosis	.01	.23

The range for the total scores for the ATPS is 134 with a minimum of 55 and a maximum of 189. The mean is 137.38 and the standard deviation is 25.14. For ATPS, the skewness and kurtosis values were in the acceptable limits. The Cronbach's Alpha is .90 in the current study.

4.2. INFERENTIAL ANALYSES

Research question # 1 Do the construct validation and reliability analyses of data collection tool (Early Teacher Identity Measure) reveal acceptable statistics and coefficients?

Research question # 1a What is the factor structure of Turkish form of the scale after conducting factor analyses?

1a Confirmatory Factor Analysis

"Factor analysis is a statistical method used to find a small set of unobserved variables (also called latent variables, or factors) which can account for the covariance among a larger set of observed variables" (Albright & Park, 2009). Factor analysis is used to assess the reliability and validity of measurement scales (Carmines & Zeller, 1979), and it is also used as an alternative method used in cross-cultural adaptation studies. There are two justifications for the usage of factor analysis in adaptation studies: **1.** a psychological feature may have different definitions in different cultures, and **2.** behavioural differential fitness can be explained with construct concept (Van de Vijver & Poortinga, 2005). In this context, factor analysis is the oldest and the most common technique used to search out whether the measurement tool is testing the same construct in different language forms (Çokluk, Şekercioğlu, & Büyüköztürk, 2014). Although it may be easy to define the functions of factor analysis, it is pretty difficult to compare the factor structures in different cultures, and there is no certain rule of it. At this point, confirmatory factor analysis stands as a widely used alternative method (Sireci, Patsula, & Hampleton, 2005).

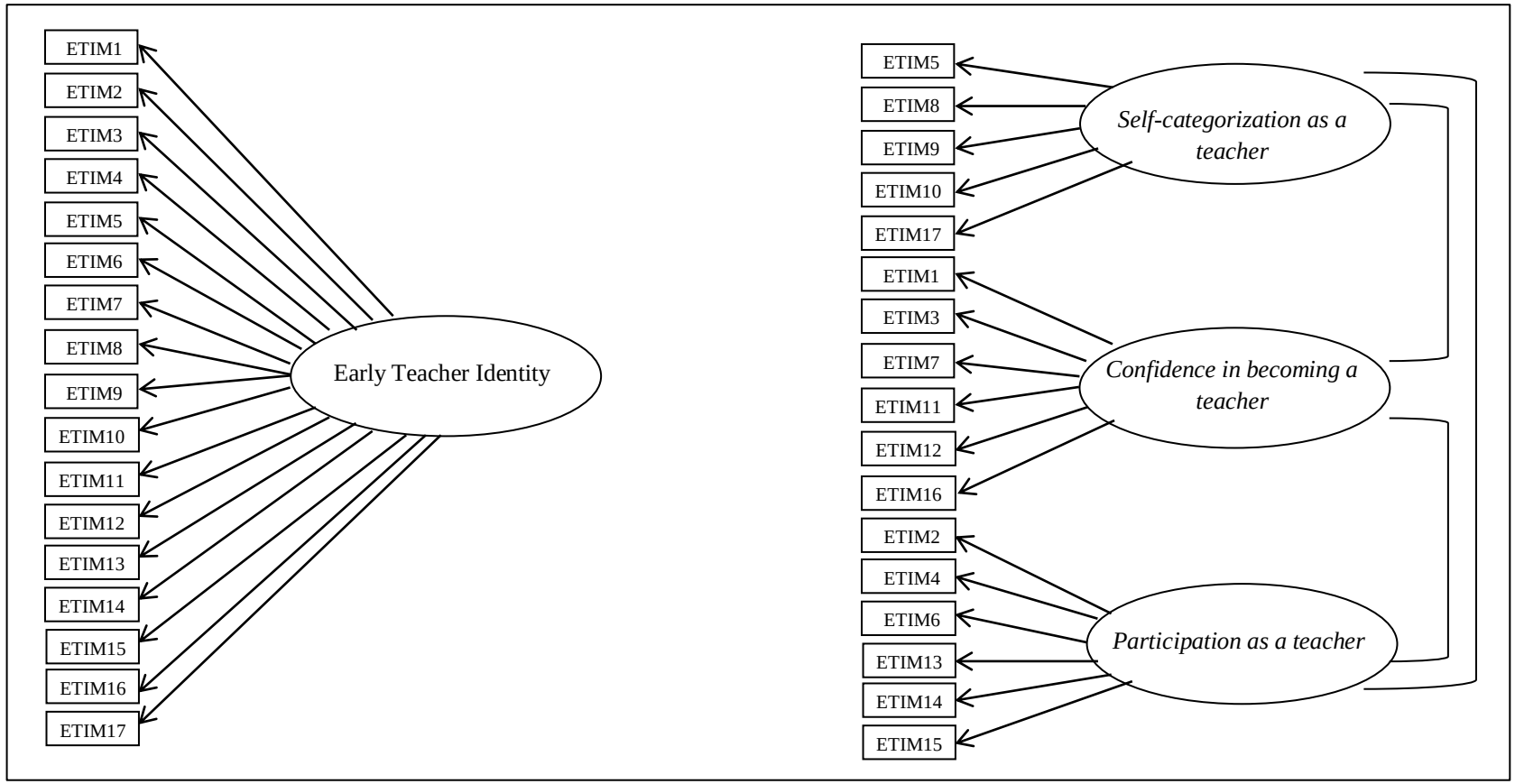
Confirmatory factor analysis (CFA) is a theory (hypothesis) driven factor analysis contrary to data-driven exploratory factor analysis (EFA). By using CFA, researchers try to place substantively meaningful constraints on the factor model,

specify the number of factors, or set the effect of one latent variable on observed variables to particular values (Albright & Park, 2009). CFA allows researchers to test hypotheses about a particular factor structure. Therefore, in the adaptation studies of valid and reliable measurement tools, the validity of the model in the target culture is analysed first by using CFA (Çokluk et al., 2014).

CFA is a widely used special case of the structural equation model (SEM), also known as the covariance structure (McDonald, 1978; Kline, 2005) or the linear structural relationship (LISREL) model (Jöreskog & Sörbom, 2004). SEM has become one of the techniques of choice for researchers across disciplines and is increasingly being a 'must' for researchers in the social sciences. In SEM, researchers look for the answer of 'Is this model valid?' instead of finding 'a new model' (Cudeck, Toit, & Sörbom, 2001; Kline, 2005). CFA corresponds to the measurement model of SEM and requires special purpose software packages such as Mplus, LISREL, Amos, EQS, and SAS/STAT CALIS, and it produces many goodness-of-fit measures to evaluate the model but do not calculate factor scores as EFA does.

In the present study, as an important part of the adaptation studies, CFA was conducted to examine the factor structure of Turkish version of ETIM. Two models were proposed for analysis: a single factor and a three-factor model which was suggested by Friesen and Besley (2013) who developed this measurement tool (see Figure 4.2.1.). After completing all translation, linguistic equivalence, and some reliability analyses, which were explained in detail in Methodology part, CFA was performed on the ETIM by means of LISREL 8.1. It was conducted in five stages as suggested by Bollen and Long (1993): *1. model specification, 2. identification, 3. estimation, 4. testing fit, and 5. respecification*.

Figure 4.2.1. Two proposed models for investigation in CFA



Friesen and Besley (2013) conducted an exploratory principal components analysis on the scale, and unrotated component structure and the scree plot seemed to support a single factor solution. However, with a varimax rotation method, they tried to distinguish the three subscales (*Self-categorization as a teacher, Confidence in becoming a teacher, Participation as a teacher*).

In the current study, by using CFA, it was aimed to test two hypothetical models of the ETIM for goodness-of-fit in a Turkish population in order to validate and confirm its underlying factor structure and to determine whether early teacher identity is better conceptualized as a single factor or a three-factor construct in this population. Furthermore, it was proposed that scores on the factors derived from the ETIM would correlate with Attitude towards Teaching Profession Scale (ATPS).

In CFA, there are some important fit indices which must be reported. Absolute fit indices are some of them, and they are used to determine "how well a priori model fits the sample data and demonstrates which proposed model has the most superior fit" (McDonald & Ho, 2002). These measures including χ^2 (Chi-Square), df (degrees of freedom), RMSEA (root mean square error of approximation), CI (confidence intervals), SRMR (square root of the difference between the residuals), NFI (normed fit index), NNFI (non-normed fit index), TLI (Tucker-Lewis index), and CFI (comparative fit index) provide the most fundamental indication of how well the proposed theory fits the data.

The Chi-Square (χ^2) value evaluates overall model fit and, 'assesses the magnitude of discrepancy between the sample and fitted covariances matrices' (Hu & Bentler, 1999, p. 2). It is also referred as either a 'badness of fit' (Kline, 2005) or a 'lack of fit' (Mulaik et al., 1989) measure. Contrary to traditional significance test, it is aimed to obtain an insignificant "*p*" value. Despite its popularity as a fit statistic, there are severe limitations in its use. As the Chi-Square statistic is a statistical significance test, it is sensitive to sample size which means that the Chi-Square statistic nearly always rejects the model when large samples are used (Bentler & Bonnet, 1980; Jöreskog & Sörbom, 1993). However, even if the sample is small, the Chi-Square statistic lacks power, and because of this, it may not discriminate between good fitting models and poor fitting models (Kenny & McCoach, 2003). Because of this restrictiveness, researchers have found alternative indices. Wheaton et al's (1977) relative/normed chi-square (χ^2/df) minimises the impact of sample size on the Model Chi-Square. Recommendations for acceptable ratio range from as high

as 5.0 (Wheaton et al, 1977) to as low as 2.0 (Tabachnick & Fidell, 2007). In the present study, the normed chi-square ratio (χ^2 /df) in model 1 is 3.95 and 3.98 in model 2.

The root mean square error of approximation (RMSEA) which essentially measures the "extent to which a model fits reasonably well in the population" (Brown, 2006) is the second fit statistic reported in the LISREL program and was first developed by Steiger and Lind (1980). The RMSEA indicates how well the model, with unknown but optimally chosen parameter estimates, would fit the populations' covariance matrix (Byrne, 1998). In recent years it has become regarded as 'one of the most informative fit indices' (Diamantopoulos & Siguaw, 2000) due to its sensitivity to the number of estimated parameters in the model. Values below .08, with a cut-off value close to .06 indicate a good fit (Byrne, 2010; Hu & Bentler, 1999), with values between .08 and .10 suggesting a mediocre fit, values greater than .10 suggesting a poor fit (MacCallum, Browne, & Sugawara, 1996), and in the current study, the RMSEA indicate a mediocre fit below .10. In model 1, RMSEA is .08, and it is .08 in model 2.

The RMR and the SRMR are the square root of the difference between the residuals of the sample covariance matrix and the hypothesised covariance model (Hooper, Coughlan, & Mullen, 2008). SRMR values range from zero to 1.0 with well-fitting values less than .05 (Byrne, 1998; Diamantopoulos & Siguaw, 2000). According to Kline (2005), SRMR values less than .10 are generally considered favourable. An SRMR of 0 indicates perfect fit but it must be noted that SRMR will be lower when there is a high number of parameters in the model and in models based on large sample sizes (Hooper et al., 2008). In our study, SRMR value is .05 in both models, which is very close to a well-fitting SRMR value suggested by Byrne (1998) and Diamantopoulos and Siguaw (2000).

Normed Fit Index (NFI) assesses the model by comparing the χ^2 value of the model to the χ^2 of the null model (Bentler & Bonnet, 1980). Values for this statistic range between 0 and 1. Bentler and Bonnet (1980) state that values greater than .90 indicate a good fit. More recent suggestions state that the cut-off criteria should be NFI $\geq$ .95 (Hu & Bentler, 1999). One of the problems with this index is that it is sensitive to sample size, underestimating fit for samples less than 200 (Mulaik et al., 1989; Bentler, 1990). This problem is adjusted by using Non-Normed Fit Index (NNFI, also known as the Tucker-Lewis index - TLI), and Bentler and Hu (1999)

have suggested NNFI ≥ .95 as the threshold. In accordance with these suggestions, NFI was found to be .96 in both models, NNFI was found to be .97 in the present study.

The Comparative Fit Index (CFI) is another important index that evaluate the fit of a model by comparing it to a baseline model, typically a null model in which indicators are uncorrelated (Bentler, 1990), and it is a revised form of the NFI which takes sample size into account (Byrne, 1998) and performs well even when sample size is small (Tabachnick & Fidell, 2007). This index was first introduced by Bentler (1990), and it is included in all SEM programs and is one of the most popularly reported fit indices due to being one of the measures least affected by sample size (Fan et al., 1999). CFI compares the sample covariance matrix with null model (Hooper et al., 2008). Values range between 0 and 1 with values closer to 1.0 indicating good fit. In recent studies, it has been clarified that a value greater than .90 is needed in order to ensure that misspecified models are not accepted (Hu & Bentler, 1999). Bearing this in mind, a value of CFI ≥ .95 is presently recognised as indicative of good fit (Hu & Bentler, 1999), and it is .97 in both models in our study.

To summarize, in the current study, both models were assessed as having reasonable goodness-of-fit on the basis of the normed chi-square (χ^2 /df, 3.95 and 3.98) ratio, the RMSEA indicating a mediocre fit below .10, SRMR with a close value to .05, and the NNFI, NFI and CFI (Model 1 and Model 2, .97) statistics being above .95. However, since the correlations between the factors are very high (1.00, .98, .96) in three-factor model 2 (see Figure 4.2.2.), the current study proceeded with exploratory factor analysis to find a better fitting.

Figure 4.2.2. Three-factor Model 2: Correlations between the factors

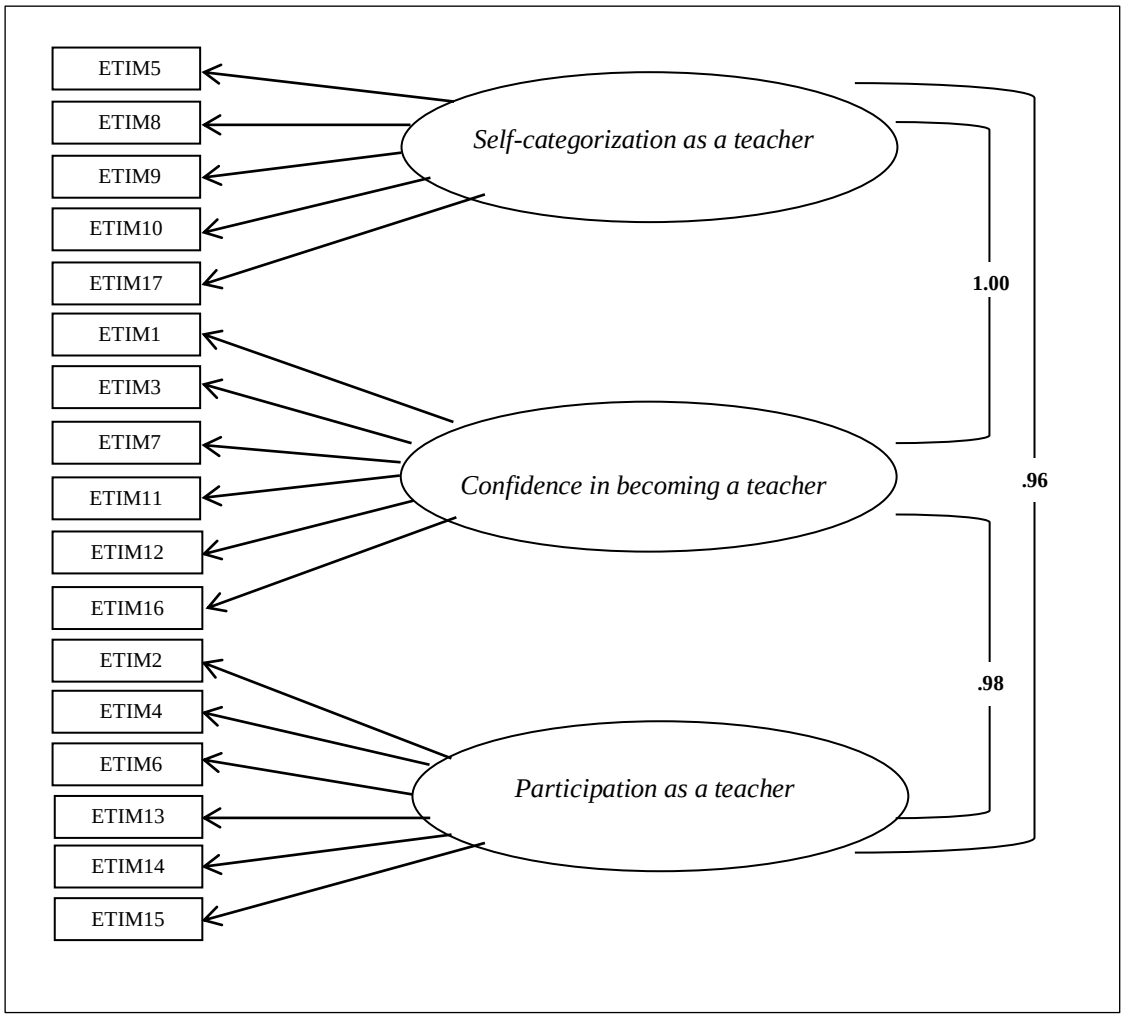


Table 4.2.1. Summary of CFA for ETIM (Model 1 and Model 2)

	χ^2	*df*	χ^2 /df	*p*	RMSEA (90% CI)	SRMR	NFI	NNFI (TLI)	CFI
Model 1 (one factor)	470.83	119	3.95	<.001	.08 (.07; .08)	.05	.96	.97	.97
Model 2 (three factors)	462.05	116	3.98	<.001	.08 (.07; .08)	.05	.96	.97	.97

X^2: Chi-Square, df: degrees of freedom, RMSEA: root mean square error of approximation, CI: confidence intervals, SRMR: square root of the difference between the residuals, NFI: normed fit index, NNFI: non-normed fit index, TLI: Tucker-Lewis index, CFI: comparative fit index

 # 1b Exploratory Factor Analysis

Exploratory factor analysis (EFA) is not only used for data reduction and naming the occurring factors, but also it is used to find out whether the factors occurred after factor analysis are in line with the theory behind the behaviour and the latent variables (Büyüköztürk, 2002, 2005). In other words, with factor analysis, it is inquired whether the indicators clustering under certain factors are also the indicators of the theoretical structure (Green, Salkind, & Akey, 1997).

In the current study, in order to bring a better explanation to the factorial structure of the scale, an EFA was conducted to summarize the statements within valid and plausible components. As some statements were negatively worded, they were reverse-coded to attain parallel forms of responses for all statements. Then, Cronbach's Alpha value was calculated for the whole scale which revealed a value of .93 that was considerably good to conduct an EFA.

First of all, the suitability of data for factor analysis was checked. The first concern was the sample size. Kass and Tinsley (1979) suggest having between 5 and 10 subjects per items of the scale up to a total of 300. If the number reaches up to 300, test parameters tend to be stable regardless of the subject to variable ratio. Field (2000) and Tabachnick and Fidell (1996) agree that it is appropriate to have at least 300 cases for factor analysis. Comrey and Lee (1992) believe that 100 is poor sample size, 300 can be considered as good, and 1000 and more is excellent. As the current study had 449 participants, the dataset was suitable for factor analysis.

A principal component analysis (PCA) was conducted on the 17 items with orthogonal rotation (varimax) since it is more popular in the research area and easier to interpret (Pallant, 2001). Corrected item-total correlation values were checked as suggested by Pallant (2001), and all values revealed that all items serve the purpose of the current study's data collection tool because they were all above .30 (see Appendix C).

As suggested by Pallant (2001) and Field (2009), the next step was to check the Kaiser-Meyer-Oklin Measure of Sampling Adequacy which is calculated for individual and multiple variables and represents the ratio of the squared correlation between variables and the squared partial correlation variables (Field, 2009). The

KMO value varies between 0 and 1. A value of 0 indicates that the sum of partial correlations is relatively large to the sum of correlations, while a value close to 1 indicates that patterns of correlations are compact, and so factor analysis will reveal reliable factors. If the KMO value is less than suggested, EFA should not be conducted (Çokluk et al., 2014). Kaiser (1974) suggests that values greater than .5 should be accepted while Pallant (2001) claims that the KMO statistic should be larger than .6. Alternatively, Hutcheson and Sofroniou (1999) suggest that values between .5 and .7 are normal, values between .7 and .8 are good, values between .8 and .9 are great, and values above .9 are superb. In the current study, the Kaiser–Meyer–Olkin measure verified the sampling adequacy for the analysis because it is .95 ('superb' according to Field, 2009), which is well above the acceptable limit of .5 (Field, 2009).

The next concern is that Bartlett's Test of Sphericity should reach a significant value to support the factorability of the correlation matrix obtained from the items (Pallant, 2001; Field, 2009). In the current study, Bartlett's test of Sphericity indicated that correlations between items were sufficiently large for ETIM by revealing an ideal Approx. Chi- Square value, χ^2 (136) = 4031.96, with a significance value of $p < .001$ which meant that the factorability of the correlation matrix was proper.

Table 4.2.2. KMO and Bartlett's Test

Kaiser-Meyer-Oklin measure of sampling adequacy	.95
Bartlett's Test of Sphericity	
Approximate χ^2	4031.96
Df	136
Sig.	.001

In the "Communalities" table (see Table 4.2.3.), the extraction values are presented, and they can be thought as determination coefficients (Pallant, 2001; Field, 2009). For example, in the output, the first item's (ETIM 1) extraction value is .61, which can be interpreted as: "*The first item demonstrates % 61 of the variance*." If this proportion is less than .10, there is a possibility of problem with those items. In the current study, the communalities ranged between .31 and .74. However, it is not appropriate to decide on data reduction by looking at the communalities as the problem must also be observed in the other analyses as suggested by Field (2000).

Table 4.2.3. Communalities

	Extraction
ETIM 1	.61
ETIM 2	.44
ETIM 3	.35
ETIM 4	.31
ETIM 5	.53
ETIM 6	.67
ETIM 7	.62
ETIM 8	.57
ETIM 9	.63
ETIM 10	.54
ETIM 11	.50
ETIM 12	.55
ETIM 13	.49
ETIM 14	.72
ETIM 15	.74
ETIM 16	.46
ETIM 17	.66

An initial analysis was run to obtain eigenvalues for each component in the data. Two components had eigenvalues over Kaiser's criterion of 1 and in combination explained 55.67% of the total variance. As there were two components with eigenvalues over 1, Total Variance Explained Table -Extraction Sums of Squared Loadings part- suggested two for the number of factors which could be used in EFA as suggested by Field (2009).

Table 4.2.4. Total variance explained

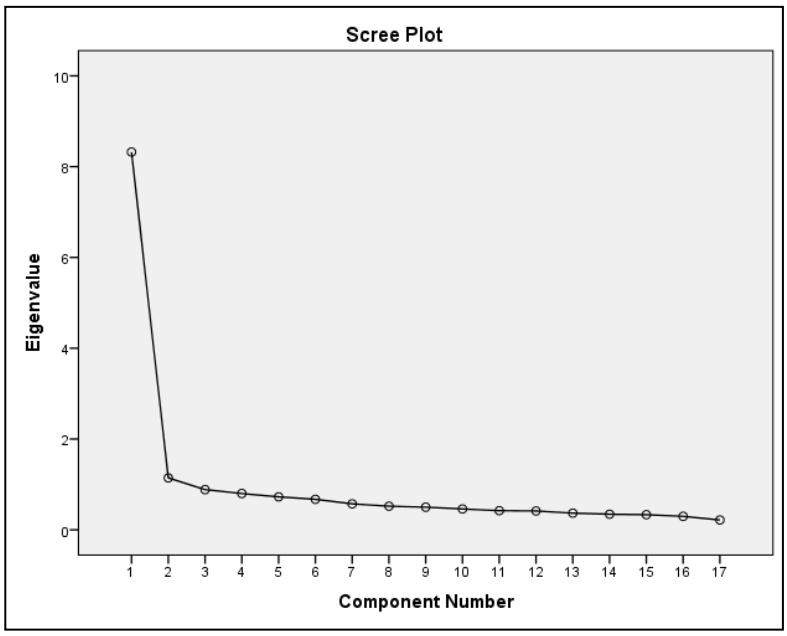
Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	8.32	48.94	48.94	8.32	48.94	48.94
2	**1.14**	**6.73**	**55.67**	**1.14**	**6.73**	**55.67**
3	.88	5.21	60.88			
4	.80	4.70	65.59			
5	.72	4.27	69.86			
6	.67	3.95	73.82			
7	.57	3.36	77.18			
8	.52	3.06	80.25			
9	.49	2.93	83.18			
10	.46	2.70	85.89			
11	.42	2.48	88.37			
12	.41	2.44	90.81			
13	.36	2.16	92.98			
14	.34	2.02	95.00			
15	.33	1.96	96.97			
16	.29	1.75	98.72			
17	.21	1.28	100.00			

Extraction Method: Principal Component

However, when the column of "% of Variance" under the "Initial Eigenvalues" was examined, it was seen that the first factor explained 48.94 % of variance; however, "% of Variance" value started to decrease gradually, and values in the second and third factors were very close to each other: *6.73% and 5.21 % of Variance*. Such a situation is an important clue to determine the number of factors as one (Dunteman, 1989; Field, 2009; Çokluk et al., 2014). However, it is better to check scree plot and component matrix before deciding (Çokluk et al., 2014).

In scree plot, the distance between each point indicates a factor (Pallant, 2001). As it is seen in Figure 4.2.3, the slope turns into a plato after the second point. After this point, the impact of the factors on variance is very low and approximately the same. With scree plot figure, it is much clear that the scale yields a one-factor structure. Although the indicators cluster under the first factor in Component Matrix, another analysis was conducted in the "Extraction" part to obtain the last component matrix after determining the number of factors as one based on a) explained variance changes for each component, b) eigenvalues, c) the screeplot as suggested by Field (2009) and Çokluk et al. (2014).

Figure 4.2.3. The scree plot regarding the final factor analysis



As the number of factors was determined as one, there was no need for rotation, and so multicollinearity did not occur (Field, 2009) because there was not any ambiguous item contaminating the factor structure. That's why, what needs to be

examined is the factor loadings in component matrix. If the factor loading of an item is low, it can be said that the item is not interrelated sufficiently with the factor. In the body of literature, there is a common agreement that factor loading must be at least .30 (Büyüköztürk, 2005). According to Tabachnick and Fidell (2001), .32 must be standardized as a rule. There are studies claiming that the limit for factor loadings should be between .30 and .40 (Coombs & Schroeder, 1988; Dunteman, 1989). Pallant (2001) claims if items load above .30, this is an appropriate loading. Field (2009) suggests that loadings less than .40 should be suppressed in the output. The current research considered .32 as the limit to create robust and conservative results as Kline (2005) suggests that sample size (which is more than 350 in the current study) is the most important thing to decide on the medium of the factor loadings. Since all factor loadings are above .55 in the current study, none of the items were excluded.

Table 4.2.5. Means, Standard Deviations, Alpha Coefficient, and Factor Loadings

	Items	Mean	SD	Factor Loadings
Factor: Early Teacher Identity				
(α =.933)				
1	I often doubt if I am the right person to become a teacher. (reverse coded)	3.76	1.14	.71
2	If I had more time to volunteer my services, I would choose to work with children.	3.68	1.01	.60
3	I have no idea what it means to be a good teacher. (reverse coded)	4.12	.98	.59
4	Family and friends often look to me when it comes to caring for or working with children/adolescents.	3.41	1.09	.56
5	I see myself as a teacher (either currently or one day)	3.74	1.05	.70
6	I enjoy helping children discover and learn.	4.09	1.01	.74
7	I often doubt my ability to be a good teacher. (reverse coded)	3.57	1.12	.64
8	I can easily see myself working with children/adolescents and helping them to learn and develop.	3.92	.92	.75
9	I feel comfortable identifying myself as a teacher	3.62	.98	.70
10	I find it difficult to see myself in charge of teaching a group of children/adolescents. (reverse coded)	3.87	1.04	.71
11	I am confident that I will develop the resources and strategies necessary to be a good teacher.	4.08	.86	.71

12	I have confidence in my ability to one day be a good teacher.	4.17	.91	.73
13	I look for opportunities to work with children/adolescents in my own time.	3.65	1.05	.65
14	Helping a child learn something new is very rewarding.	4.27	.90	.75
15	I enjoy helping out with children's activities.	4.18	.94	.77
16	I am satisfied with the progress that I am making in my teacher education.	3.78	1.00	.68
17	I am a natural teacher	3.58	1.10	.78

Extraction Method: Principal Component

After all analyses, the component with the eigenvalue over Kaiser's criterion of 1 explained 48.94% of the total variance with communalities ranging between .31 and .61, and the KMO and Bartlett's Test of Sphericity values remained the same. Corrected-item total values of items of the final form of the scale ranged between .51 and .74, which meant that the reliability assumptions of factors were perfectly met as recommended by Büyüköztürk (2005) (Item-total correlation values for the ETIM are presented in the Appendix C). Additionally, in *Scale if item deleted* table (see Appendix C), no item causes a substantial decrease in α, which indicates the reliability of the scale, as well.

In conclusion, the first version of ETIM developed by Friesen and Besley (2013) had consisted of three factors: *Self-categorization as a teacher*, *Confidence in becoming a teacher*, *Participation as a teacher*. However, based on the current study's results, it can be suggested that it is better to use ETIM as a one-factor scale by preserving its theoretical background. When there is one factor underlying the data, α is a measure of the strength of that factor (Cortina, 1993) and the Cronbach's Alpha was .93 after all factor analyses were completed. Based on the factor structure and the component matrix which indicated that all items were related, the author suggests that the total score can be used as "ETIM score". The descriptive details of the scale were given in the previous part of this study (see Table 4.1.2.).

Research question # 1b What are the reliability coefficients of the ETIM?

An alternative way of computing the reliability of a sum scale is to divide it in some random manner into two halves. If the sum scale is perfectly reliable, it is assumed that the two halves are perfectly correlated (Field, 2009). The reliability of the sum scale can be estimated via the *Spearman-Brown split half* coefficient. In the current study, the Spearman-Brown split half reliability is .92. Additionally, the scale has a test-retest reliability of r= .85 (p<.001, n = 65) over a period of 4 weeks.

Table 4.2.6. The Spearman-Brown split-half reliability

Cronbach's Alpha				**Spearman-Brown Coefficient**	
Part 1		**Part 2**		Equal Length	Unequal Length
Value	N of Items	Value	N of Items	.92	.92
.86	9[a]	.88	8[b]	**Guttman Split-Half Coefficient** .91	
Correlation Between Forms .85					

a. The items are: ETIM1, ETIM 2, ETIM 3, ETIM 4, ETIM 5, ETIM 6, ETIM 7, ETIM 8, ETIM 9.
b. The items are: ETIM 10, ETIM 11, ETIM 12, ETIM 13, ETIM 14, ETIM 15, ETIM 16, ETIM 17.

Research question # 1c What is the item discrimination calculated through a comparison between the top and bottom 27% groups?

Table 4.2.7. t-value (The top and bottom 27% groups)²

	t-value (The top and bottom 27% groups)²
ETIM 1	17.80***
ETIM 2	11.60***
ETIM 3	11.42***
ETIM 4	12.02***
ETIM 5	16.18***
ETIM 6	14.16***
ETIM 7	16.43***
ETIM 8	17.16***
ETIM 9	18.15***
ETIM 10	14.15***
ETIM 11	14.12***
ETIM 12	13.68***
ETIM 13	12.73***
ETIM 14	11.19***
ETIM 15	12.68***
ETIM 16	13.64***
ETIM 17	20.36***

n:449 / n1=n2=121 / ***p<.001

Wiersma and Jurs (2005) stated that "item discrimination calculated through a comparison between the top and bottom 27% groups is used because it has shown that this value will maximize differences in normal distributions while providing enough cases for analysis." There need to be as many students as possible in each group to promote stability, at the same time it is desirable to have the two groups be as different as possible to make the discriminations clearer. By following the evaluation criteria suggested by Büyüköztürk (2012), as illustrated in Table 4.2.7, t values are significant ($p<.001$) in the current study, which shows that the items in the scale are valid, they discriminate the participants in the context of early teacher identity, and they are intended to measure the same behaviour.

Research question # 1d According to criterion validity, is there a relationship between the ETIM and Attitude towards Teaching Profession Scale?

In order to test the criterion validity of the ETIM, the relationship between ETIM and ATPS (Attitude towards Teaching Profession Scale) developed by Çetin (2006) was investigated. Çetin (2006) developed the scale to measure the attitude of the students at education faculty towards teaching profession. The results are presented in Table 4.2.8.

Table 4.2.8. Correlation between ETIM and ATPS

	ATPS (Love)	**ATPS (Esteem)**	**ATPS (Harmony)**
ETIM	.75**	.57**	.68**

**p<.01

The Pearson product moment correlation indicated that there is a significant positive correlation between subjects' ETIM scores and their ATPS scores at .01 level (r= .75, .57, .68; p>.01). As pre-service teachers' beliefs, attitudes, and thoughts about teaching profession will form their teacher identities, the positive correlation between these two scales serves the purpose of the current study by indicating that the adapted form of the ETIM fulfils all the requirements of an adapted scale in another culture.

Research question # 2 Is there a relationship between students' pre-service teacher identity and their need for cognition (as determined by Early Teacher Identity Measure (ETIM) and Need For Cognition Scale (NFCS))?

Correlation is a statistical process that indicates the amount and direction of the relationship between two data array. At the end of a correlation proceeding, a correlation coefficient between -1 and +1 is obtained. Pearson product moment correlation which is the most commonly used type of correlation (Can, 2014) was conducted in order to find the correlation between ETIM and NFCS. According to Green and Salkind (2005), there are some requirements that have to be met for Pearson correlation analysis: (1) the two variables must be continuous and display a normal distribution in a linear relationship, and (2) data pairs must be independent of each other. Since the current study can meet these assumptions for the relationship between early teacher identity and need for cognition, Pearson product moment correlation was an appropriate method to be used. Table 4.2.9 shows the correlation:

Table 4.2.9. Correlation between ETIM and NFC

		ETIM	**NFC**
ETIM	Pearson Correlation	1	.62**
	Sig. (2-tailed)		.00
	N	449	449
NFC	Pearson Correlation	.62**	1
	Sig. (2-tailed)	.00	
	N	449	449

**. Correlation is significant at the .01 level (2-tailed).

With the Pearson product moment correlation, it has been found that there is a significant positive correlation between subjects' early teacher identity scores and their need for cognition scores at the .01 level ($r = .62$, $p < .01$). This means that as the level of need for cognition increases, the participants' early teacher identity scores increase. This correlation value serves one of the assumptions of the study suggesting a relationship between early teacher identity and need for cognition.

Research question # 3 Is there a relationship between students' pre-service teacher identity and demographic variables (as determined by a background questionnaire)?

A background questionnaire was prepared by the researcher to investigate the relationship between subjects' pre-service teacher identity and some demographic variables like gender, GPA, study year, department, schooling background, and teaching experience.

Research question # 3a Is there a relationship between students' pre-service teacher identity and their gender?

An independent samples t-test was used for the answer of this research question. Independent t-test is a parametric test administered to compare the means of two groups on a given variable. There are some assumptions which should be met to conduct a t-test as a reliable indicator of the difference between means of two groups (Larson-Hall, 2010; Field, 2009; Can, 2014): (1) the two groups must be independent of each other, (2) they must have approximately the same variance on the dependent variable, which will be checked with the Levene's test; and (3) the distribution of the dependent variable must be close to the normal distribution, which can be checked by looking at the skewness value.

In our study, the female and male groups are totally independent of each other. Whether they have approximately the same variance on the dependent variable or not will be checked with the Levene's test, and if the significance is greater than .05, this assumption will be met. In order to check the normal distribution, skewness value was taken into consideration. According to Huck (2000), the skewness value must be between -1.0 and +1.0. Furthermore, Can (2014) states that if skewness is smaller than 1.0, the distribution of the dependent variable is close to the normal distribution. In the current study, the skewness value is .22, which is a negatively distributed set.

The results of the t-test are presented in Table 4.2.10 and 4.2.11:

Table 4.2.10. Summary of the Levene's Test for ETIM

	Levene's Test for Equality of Variances	
	F	**Sig.**
Early Teacher Identity	.30	.58

The significance value in the Levene's test (sig.: .58>.05) shows that two groups have approximately the same variance on the dependent variable in our dataset.

Table 4.2.11. Summary of the Independent Samples T-test for ETIM and Gender

		Number	Mean	df	t-value	Sig. (2 t.)
Early Teacher Identity	**Male**	136	64.64	447	-1.08	.27
	Female	313	65.98			

Next, the t-test was administered in order to investigate whether the difference between the means of gender and early teacher identity is significant or not, and it revealed that the difference between the means of the two groups ($\bar{X}_A$ 64.64, $\bar{X}_B$ 65.98) is not significant (Sig. (2t.): .27). The indication is that the difference between males and females in terms of early teacher identity is not significant [$T_{(447)} = -1.08$, $p > .05$], so gender is not a distinctive factor for pre-service teacher identity.

Research question # 3b Is there a relationship between students' pre-service teacher identity and their GPAs?

After a Pearson product moment correlation was administered to find an answer to the research question above, correlation coefficient demonstrated that the relationship between pre-service teacher identity and GPA is not a significant one (r= .12) as illustrated in Table 4.2.12.

Table 4.2.12. Correlation between ETIM and GPA

		ETIM	GPA
ETIM	Pearson Correlation	1	.12
	Sig. (2-tailed)		.17
	N	449	449
GPA	Pearson Correlation	.12	1
	Sig. (2-tailed)	.17	
	N	449	449

Research question # 3c Is there a relationship between students' pre-service teacher identity and their study year?

The researcher made use of another Pearson product moment correlation in order to answer the research question # 3c. The results are as follows:

Table 4.2.13. Correlation between ETIM and study year

		ETIM	Study Year
ETIM	Pearson Correlation	1	.45**
	Sig. (2-tailed)		.00
	N	449	449
Study Year	Pearson Correlation	.45**	1
	Sig. (2-tailed)	.00	
	N	449	449

**. Correlation is significant at the .01 level (2-tailed).

This part of the study illustrated a significant positive correlation between subjects' early teacher identity scores and their study years at education faculty at .01 level ($r = .45$, $p < .01$). This means that as participants get teacher education training in the advancing years of their education, their early teacher identity scores increase. This correlation value serves one of the assumptions of the study suggesting a relationship between early teacher identity and study year.

Research question # 3d Is there a relationship between students' pre-service teacher identity and their departments?

This research question was investigated by using a one-way ANOVA. According to Can (2014), in order to conduct one-way ANOVA, the dependent variable must be a scale variable, and our dataset meets this requirement. Secondly, the scores on the dependent variable must be normally distributed, which can be tested with skewness value. Since the skewness value is between -1.0 and +1.0 (.36), it can be said that the dependent variable is normally distributed in our study. Thirdly, the groups that will be compared must be independent of each other. In the present study, the departments of the participants will be compared, and they are independent of each other. Lastly, the variances related to the dependent variable must be equal for each group. A Levene's test will be used to test this assumption.

Table 4.2.14. Summary of the Levene's Test, Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
1.24	3	445	.29

Since the significance value is p > .05, the last assumption is met (sig. = .05 < .29). That means that the variances are homogenous, and the hypothesis 'the difference between the group variances is not significant' has been accepted. Therefore, it is going to be assumed that the variances are equal.

Table 4.2.15. Summary of the One-way ANOVA for ETIM and Departments

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2028.97	3	676.32	4.86	.002
Within Groups	61908.62	445	139.12		
Total	63937.59	448			

As the significance value is p < .05 (sig. = .002< .05), the difference between the means of at least two groups among four groups whose means have been compared is significant. Therefore, department can be a distinctive factor for early teacher identity. In order to see the groups between which the difference is significant, a Post Hoc test was administered. Tukey Test was chosen because the group variances are equal.

Table 4.2.16. Summary of the Tukey Test

Department		Mean Difference	Std. Error	Sig.
English Language Teaching	Primary School T.	2.08	1.95	.71
	Mathematics T.	.106	1.94	1.00
	Turkish Lang. T.	-3.25	1.87	.30
Primary School Teaching	English Lang T.	-2.08	1.95	.71
	Mathematics T.	-1.97	1.52	.56
	Turkish Lang. T.	-5.33	1.44	.001
Mathematics Teaching	English Lang T.	-.10	1.94	1.00
	Primary School T.	1.97	1.52	.56
	Turkish Lang. T.	-3.35	1.42	.08
Turkish Language Teaching	English Lang T.	3.25	1.87	.30
	Primary School T.	5.33	1.44	.001
	Mathematics T.	3.35	1.42	.08

In Tukey Test, if the significance value of the means of the compared groups is p >.05, the difference is not significant, but if it is p < .05, the difference is significant. As it can be seen in Table 4.2.16, the difference between the means of departments of primary school and Turkish language teaching is significant (sig.= .001< .05). Another important SPSS output related to multiple comparison is Homogeneous Subsets table:

Table 4.2.17. Homogeneous Subsets

		Subset for alpha = .05	
Department	**N**	**1**	**2**
Primary School Teaching	116	62.91	
Mathematics Teaching	122	64.89	64.89
English Language Teaching	53	65	65
Turkish Language Teaching	158		68.25
Sig.		.61	.20

Means for groups in homogenous subsets are displayed
a. Uses Harmonic Mean Sample Size = 95.20
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed

Since departments of primary school and Turkish language teaching are in different groups in Table 4.2.17, it is assumed that there is a difference between them. Another important issue is the effect size (n^2) of the difference, and, in the current study, it was found to be .03 which has a low impact (Green & Salkind, 2005). The table below summarizes the important outputs obtained from one-way ANOVA:

Table 4.2.18. Summary of the One-way ANOVA for ETIM and Departments

the source of variance	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**	**Significant Difference**
Between Groups	2028.97	3	676.32	4.86	.002	departments of primary school and Turkish language teaching
Within Groups	61908.62	445	139.12			

Research question # 3e Is there a relationship between students' pre-service teacher identity and their schooling background?

To answer this research question, it was decided to use a one-way ANOVA based on the assumptions stated in the previous research question. The skewness value is between -1.0 and +1.0 (.80), so it can be said that the dependent variable is normally distributed. Levene's test in Table 4.2.19 illustrates that the significance value is $p > .05$ (sig. = .05 < .13), which means that the variances are homogenous.

Table 4.2.19. Summary of the Levene's Test for schooling background

Levene Statistic	df1	df2	Sig.
1.26	7	439	.13

Since significance value is $p > .05$ (sig. = .18> .05), the results of the ANOVA suggest that the differences among the groups are not significant. Thus, schooling background is not a distinctive factor for early teacher identity.

Table 4.2.20. Summary of the One-way ANOVA for ETIM and Schooling Background

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1776.46	3	197.38	1.39	.18
Within Groups	62161.13	439	141.59		
Total	63937.59	448			

Research question # 3f Is there a relationship between students' pre-service teacher identity and their teaching experience?

Another independent samples t-test was used to answer this research question. It was administered to compare the means of two groups – the ones with teaching experience and the ones without teaching experience. With the skewness value of .26, the distribution is close to the normal distribution.

The results of the t-test are presented in Table 4.2.21:

Table 4.2.21. Summary of the Levene's Test for ETIM

	Levene's Test for Equality of Variances	
	F	**Sig.**
Early Teacher Identity	6.23	.01

The significance value in Levene's test (sig.: .05 > .01) shows that two groups do not have the same variance on the dependent variable in our dataset. Since the significance value is less than .05, the assumption of that the two groups have approximately the same variance on the dependent variable have not been met. However, if the assumptions are not fulfilled for independent samples t-test, Mann-Whitney U Test, a nonparametric test, can be used.

Table 4.2.22. Summary of the Mann-Whitney U Test for ETIM and Teaching Experience

	Teaching Experience	**Number**	**Mean Rank**	**Sum of Ranks**	**U**	**P**
Early Teacher Identity	**yes**	195	240.24	46846.5	21793.5	.02
	no	254	213.30	54178.5		

*p<.05

Therefore, in this stage of the study, Mann-Whitney U Test was administered in order to investigate whether the difference between the means of teaching experience and early teacher identity is significant or not, and it revealed that the difference between the mean ranks of the two groups (Mean Ranks: 240.24 & 213.30) is significant (U= 21793.5, p<.05). The indication is that the difference between the subjects with any kind of teaching experience and the subjects without any teaching experience in terms of early teacher identity is significant, so having some teaching experience is a distinctive factor for pre-service teacher identity.

Research question # 4 Is there a relationship between students' levels of need for cognition and demographic variables (as determined by a background questionnaire)?

A background questionnaire was prepared by the researcher to investigate the relationship between subjects' need for cognition and some demographic

variables like gender, GPA, study year, department, schooling background, and teaching experience.

Research question # 4a Is there a relationship between students' levels of need for cognition and their gender?

An independent samples t-test was conducted to answer this research question. It was administered to compare the means of gender.

Table 4.2.23. Summary of the Levene's Test for NFC

	Levene's Test for Equality of Variances	
	F	**Sig.**
Need For Cognition	1.25	.26

The significance value in the Levene's test (sig.: .26>.05) shows that two groups have approximately similar variance on the dependent variable in the dataset.

Table 4.2.24. Summary of the Independent Samples T-test for NFC and Gender

		Number	**Mean**	**df**	**t-value**	**Sig. (2 t.)**
Need For Cognition	**Male**	136	64.89	447	.64	.51
	Female	313	64,09			

T-test reveals whether the difference between the means of gender and need for cognition is significant or not, and the difference between the means of the two groups ($\overline{X}_A$ 64.89, $\overline{X}_B$ 64.09) is not significant (Sig. (2t.): .51). As a result, the indication is that the difference between males and females in terms of need for cognition is not significant [$T_{(447)} = .64$, $p > .05$], so gender is not a distinctive factor for need for cognition in the present study.

Research question # 4b Is there a relationship between students' levels of need for cognition and their GPAs?

A Pearson product moment correlation was administered to answer the research question, and correlation coefficient demonstrates that the relationship

between need for cognition and GPA is not a significant one (r= .20) as illustrated in Table 4.2.25.

Table 4.2.25. Correlation between NFC and GPA

		NFC	GPA
NFC	Pearson Correlation	1	.20
	Sig. (2-tailed)		.10
	N	449	449
GPA	Pearson Correlation	.20	1
	Sig. (2-tailed)	.10	
	N	449	449

Research question # 4c Is there a relationship between students' levels of need for cognition and their study year?

It was appropriate to devise a Pearson product moment correlation in order to determine whether the relationship between need for cognition and subjects' study year was a significant one. The results are as follows:

Table 4.2.26. Correlation between NFC and study year

		NFC	Study Year
NFC	Pearson Correlation	1	.03
	Sig. (2-tailed)		.45
	N	449	449
Study Year	Pearson Correlation	.03	1
	Sig. (2-tailed)	.45	
	N	449	449

The Pearson product moment correlation coefficient demonstrates that the relationship between study year and NFC is not a significant one (r= .03), which is contrary to the findings of the study by Garipağaoğlu et al. (2012) as they found that NFC varies with respect to students' study year, their frequency of doing search for their own sake and career planning.

Research question # 4d Is there a relationship between students' levels of need for cognition and their departments?

Since dataset meets all the assumptions, a one-way ANOVA was administered. Levene's test in Table 4.2.27 indicates that the significance value is p > .05 (sig. = .05<.26), which means that the variances are homogenous.

Table 4.2.27. Summary of the Levene's Test for NFC and departments

Levene statistic	df1	df2	Sig.
1.31	3	445	.26

However, in the next stage of one-way ANOVA, as the significance value is p > .05 (sig. = .08>.05), the results of the ANOVA suggest that the differences among the groups are not significant. Thus, department is not a distinctive factor for need for cognition.

Table 4.2.28. Summary of the One-way ANOVA for NFC and departments

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	963.12	3	321.04	2.21	.08
Within Groups	64619.09	445	145.21		
Total	65582.21	448			

Research question # 4e Is there a relationship between students' levels of need for cognition and their schooling background?

With the help of one-way ANOVA based on the assumptions stated in the previous research questions, Levene's test in Table 4.2.29 shows that the significance value is p > .05 (sig. = .05 < .08) showing that the variances are homogenous.

Table 4.2.29. Summary of the Levene's Test for schooling background

Levene Statistic	df1	df2	Sig.
1.81	7	439	.08

In one-way ANOVA (see Table 4.2.30), significance value is p > .05 (sig. = .22> .05), so the results suggest that the differences among the groups are not significant. Thus, schooling background is not a distinctive factor for need for cognition.

Table 4.2.30. Summary of the One-way ANOVA for NFC and Schooling Background

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1737.41	9	193.04	1.32	.22
Within Groups	63844.80	439	145.43		
Total	65582.21	448			

Research question # 4f Is there a relationship between students' levels of need for cognition and teaching experience?

Independent samples t-test was administered to compare the means of two groups – the ones with teaching experience and the ones without teaching experience on the basis of need for cognition.

Table 4.2.31. Summary of the Levene's Test for NFC

	Levene's Test for Equality of Variances	
	F	**Sig.**
Need For Cognition	4.23	.04

The significance value in Levene's test (sig.: .05 > .04) shows that two groups do not have the same variance on the dependent variable in the dataset. Since the significance value is less than .05, the assumption of that the two groups have approximately the same variance on the dependent variable have not been fulfilled. Therefore, Mann-Whitney U Test, a nonparametric test, was used.

Table 4.2.32. Summary of the Mann-Whitney U Test for NFC and Teaching Experience

	Teaching Experience	Number	Mean Rank	Sum of Ranks	U	P
Need For Cognition	**yes**	195	242.84	47354.0	21286.0	.01
	no	254	211.30	53671.0		

*p<.05

Mann-Whitney U Test helped to investigate whether the difference between the means of teaching experience and need for cognition is significant or not. It was concluded that the difference between the mean ranks of the two groups (Mean Ranks: 242.84 & 211.30) is significant ($U= 21286.0$, $p<.05$). In other words, the difference between the subjects with any kind of teaching experience and the subjects without any teaching experience in terms of need for cognition is significant, so having some teaching experience is a distinctive factor for need for cognition.

4.3. DISCUSSION

As a sign of increasing number of studies on teacher identity, there are different types of studies on teacher identity. These are generally qualitative studies including concept maps (Beijaard et al., 2004; Lim, 2011) and identity factors in different teacher groups (Hong, 2010). However, these studies do not include perspectives from related fields like psychology and sociology and do not count on systematic comparisons (Beijaard et al., 2004). As teacher identity development process needs more investigation (Korthagen, 2004; Rodgers & Scott, 2008; Hamman, Gosselin, Romano, & Bunan, 2010), studies on this topic can incorporate with other fields (Friesen & Besley, 2013).

As an indispensable part of professional development, teacher identity development should be a part of pre-service teachers' teacher education. However, not all teacher candidates achieve this in the same way or at the same rate, and some may never successfully attain it. As educators, our concern must be to find what factors facilitate a successful teacher identity development for pre-service teachers. By looking at the relationship between early teacher identity and need for cognition found in the current study, it can be suggested that an individual difference, need for cognition, can be used as a way of developing early teacher identity.

The primary concern of the current study was to explore the relationship between pre-service teacher identity and need for cognition. In order to examine this relationship, a scale adaptation study was conducted, too. After meeting the requirements of all translation stages, linguistic equivalence and reliability studies, which were explained in detail in methodology part, further analyses were done as parts of a proper adaptation process, and these analyses were also demonstrated in the inferential analyses part of this chapter. The study focused on four main research

questions and fifteen sub-questions dealing with early teacher identity and need for cognition.

As suggested by Hambleton and Patsula (1999), adaptation process included the analyses of confirmatory and exploratory factor analyses, the split-half reliability coefficient and the test-retest reliability of the scale, item discrimination analysis calculated through a comparison between the top and bottom 27% groups, and criterion validity analysis.

First of all, a confirmatory factor analysis was conducted in order to examine the factor structure of Turkish version of ETIM and to find out whether the measurement tool is testing the same construct in Turkish language form (Çokluk et al., 2014). In this way, the validity of the model in the target culture was analysed. Although the results of CFA (see Table 4.2.1: *Chi-Square, degrees of freedom, root mean square error of approximation, confidence intervals, square root of the difference between the residuals, normed fit index, non-normed fit index, Tucker-Lewis index, comparative fit index*) were either perfectly or adequately attained, the proposed model led us to conduct an exploratory factor analysis. Friesen and Besley (2013) developed ETIM consisting of three factors: *Self-categorization as a teacher, Confidence in becoming a teacher, Participation as a teacher*, but the present study suggests to use ETIM, based on the EFA results (see Table 4.2.5), as a one-factor scale by preserving its theoretical background. Reliability analyses also revealed that the present study has a Spearman-Brown split half reliability of .92 and a test-retest reliability of r= .85 ($p<.001$, n = 65), which displayed another feature of a well-adapted scale according to Hambleton and Patsula (1999). Additionally, item discrimination calculation showed that the items in the scale are valid and they discriminate the participants in the context of early teacher identity, and they are intended to measure the same behaviour (see Table 4.2.7). Lastly, the relationship between ETIM and Attitude towards Teaching Profession Scale in terms of criterion validity revealed that there is a positive correlation between these two scales (see Table 4.2.8, r= .75, .57, .68; $p>.01$). All these analyses conducted during the adaptation process indicate that the adapted form of the ETIM fulfils all the requirements of an adapted scale in another culture, as suggested by Hambleton and Patsula (1999), Geisinger (1994), Deniz (2007), and Savaşır and Şahin (1997), and the total score can be used as 'ETIM score'.

As a one-factor scale, adapted form of ETIM has distinctive statements which reflect the identity formation process of a pre-service teacher, and these items are the worded forms of the theoretical background. Although factor analyses revealed one factor for the measurement tool in the present study, the subcategories determined by the developer of the scale can still be used to explain the theoretical background. For example, whether a pre-service teacher categorizes himself/herself as a teacher or not is an important position for their teacher identity development. The items (5, 8, 9, 10, 17) gathered under *Self-categorization* as a dimension questioning participants' perception of themselves as a teacher. Lortie (1975) claims that 'being a teacher' concept starts with teacher candidate's stepping in teacher education programme with an unconscious internalization of teaching models. According to data gained from our study, 41.6% of the participants agree on that they see themselves as a teacher (either currently or one day), and 24.7% of them strongly agree on this statement (see APPENDIX D). Furthermore, almost 50% (see APPENDIX D) agree on the statement that 'I am a natural teacher', which can be a sign of an achieved teacher identity in their future career because professional identity can be defined by "how a teacher identifies him or herself in the field of teaching" (Lerseth, 2013, p. 28).

Studies on teacher identity point out that how well teachers do as teachers, how long teachers stay in the profession, and how teachers feel about themselves as teachers in the classroom are determined by the ways teachers view themselves as professional teachers (Ingersoll, 2001; Hong, 2010; Mahan, 2010). In their study, Beijaard et al. (2000) found an important factor which is teachers' own perception of their profession because teachers' self-perception related to their teacher identity changes their development, and they can easily deal with a variety of situations in and out of the classroom. By seeing the importance of teacher identity, Beijjard and his colleagues (2000) suggest that it is important to study professional identity, not only for current teachers, but also for pre-service teacher candidates. Self-categorization as a teacher during teacher identity formation is important in "influencing teachers' decision-making, professional lives, motivation, satisfaction, commitment, and career decisions" as Lerseth (2013, p. 22) stated. Beijjard et al. (2000) put forward that teacher candidates can easily cope with educational challenges and changes if they have some perception about their professional identity. Therefore, with studies like the current one, teacher identity status of the

pre-service teachers can be determined during their teacher education, and teachers can be supported to diminish dissatisfaction at their future profession (Moore & Hoffman, 1988). Likewise, paying attention to identity in teacher education is also important as Bullough (1997) stated that "understanding of student teachers' views on learning and teaching and themselves as teachers is of vital importance for teacher educators as it is the foundation for meaning-making and decision-making" (p. 18). If they do not critically focus on their teacher identity during teacher education, the beginning teachers may go through a 'transition shock' because of the real world teaching facts. As a result, many beginning teachers become disillusioned, frustrated, lost, and start doubting their career choice and choose even to leave the teaching profession early (Delgado, 1999). Hence, there is a need for individual maturation process that begins during the teacher preparation for the development of teacher professional identity (Brott & Kajs, 2001).

The second dimension is theoretically based on *Confidence in becoming a teacher* (items 1, 3, 7, 11, 12, 16). This statement reflects participants' confidence in their ability to develop the skills and resources necessary in order to be a successful teacher (Friesen & Besley, 2013). In the present study, nearly 70% of the participants (see APPENDIX D) believe that they are the right person to become a teacher. While almost 66% of them are satisfied with the progress that they are making in their teacher education, almost 20% of the participants are not confident that they will develop the resources and strategies necessary to be a good teacher (see APPENDIX D). During teacher education, students learn about their profession by constructing a teacher identity, and "to respond to the many complex demands placed on them, teachers need to be secure in their understanding of their place in the profession and in society" (Forde et al., 2006, p. 15). Throughout teacher preparation programme, pre-service teacher's sense of identity and personal knowledge is substantive (Danielewicz, 2001; Knowles, 1992; Steffy, Wolfe, Pasch & Enz, 2000); however, according to Fuller and Bown (1975), pre-service teachers may get through some concerns about their career and identity. During their first years in teacher education programmes, teaching role can be more fantasy rather than reality-based as they still feel like a student. "They feel stimulated, apprehensive, exposed, endangered, confused, discouraged, touched, proud, and lost – not necessarily in that order" (Fuller & Bown, 1975, p.28). At this point, teacher educators can support teacher

candidates to develop a confident teacher identity by leading them to think on their profession consciously.

Participation as a teacher (items 2, 4, 6, 13, 14, 15) constitutes the last theoretical dimension of the scale, and it is based on "participants' tendencies to naturally get involved with children on their own accord and satisfaction in teaching or leading children" (Friesen & Besley, 2013, p. 27). While 62.2% of the participants agree on that they would choose to work with children if they had more time to volunteer their services, 34.5% disagree with that statement (see APPENDIX D). Similarly, more than half of the participants agree with the statement that "I look for opportunities to work with children/adolescents in my own time" (see APPENDIX D). Another example indicating participants' active roles in their teacher identity development is the statement of "I enjoy helping children discover and learn." Almost 85% of the subjects showed eagerness to take the teacher role by agreeing on this statement (see APPENDIX D). In line with the theoretical background of *participation as a teacher*, construction of teacher identity involves "agency" which is defined as the teacher's need to be an active participant in their professional development. Britzman (1986) asserted that "pre-service teaching institutions provide the theories, methods, and skills; schools provide the classroom, curriculum, and students; and student teacher provides the individual effort; all of which combine to produce the finished product of professional teacher" (p. 445). Chong (2011) argues that teacher identity is not only how well they do in the classroom because what is more important is pre-service teachers' understanding of their professional role. This understanding of the teacher's role is a basic element in construction of identity (Connelly & Clandinin, 1999).

The findings of the inferential analysis suggest that early teacher identity and need for cognition are two separate but related constructs ($r = .62$, $p < .01$). This means that as the level of need for cognition increases, the participants' early teacher identity scores increase. Although there is no research studying on both of them at the same time, literature includes studies consistent with an association between need for cognition and teacher identity. With the idea that teacher education programmes can benefit from psychological theory to study on teacher identity development, Friesen and Besley (2013) found that teacher identity is related to both personal identity and social identity in their study. Some studies on teacher identity focuses on the concept of 'teacher' as a person (Nias, 1989; Britzman, 2003; Korthagen, 2004;

Olsen, 2008), and according to these studies, while pre-service teachers construct their teacher identity, their personal and professional selves interact (Korthagen, 2004; Chong, 2011).

Personal identity "represents the amount of self-knowledge, synthesis, and consistency that a person possesses over time and across situations" (Schwartz et al., 2009, p. 147), and as a complex and multi-faceted construct, identity is related to teacher development and success in teaching profession (Lerseth, 2013). A developed personal identity leads to increased professional teacher identity because individuals with a better self-knowledge reflect on the values and roles of being a teacher (Friesen & Besley, 2013). Accordingly, Alsup (2006) argues that pre-service teachers should adopt a teacher identity with exploration for the development of a professional identity, which is also supported by Trent (2011) who suggests that "pre-service teachers must be stimulated to examine their personal beliefs, philosophies, and life-course experiences, and to critically and reflectively compare these to the philosophies and ideologies of their teacher educators or supervisors" (p. 532) so that they can develop a professional teacher identity.

In consistent with the current study, there are some studies advocating the effect of individual differences on identity development process (Clancy & Dollinger, 1993; Zuo & Tao, 2002; Njus & Johnson, 2010). For example, Njus and Johnson (2010) focused on "the importance of a cognitive and motivational individual-difference variable in the development of a unique and cohesive identity" (p. 646), and they analysed the relationship between psychosocial developmental process and need for cognition. They think that need for cognition, the desire to engage in effortful thinking, can be linked to identity development as it includes the process of resolving the adolescent identity crisis. The central psychosocial crisis of the adolescent years is identity versus role confusion (Erikson, 1963) as adolescents try to identify their roles, values, and beliefs with a sense of self. If they can attain their own identity, this stage will lead to *identity achievement*, and if they cannot, they will be in a role confusion or *diffusion* without purpose. With an elaboration on Erikson's (1963) approach, Marcia (1993) termed people *identity achieved* or *identity diffused* according to what they end up with at the end of this process. Identity achievement is only possible with a crisis-based search and self-exploration (Njus & Johnson, 2010). During this self-exploration, student teachers may feel uncertainty

and conflict while trying to balance their personal identity with professional identity (Meijer et al., 2011).

Achieved identity requires "a search among various roles and possible selves to find a unique, cohesive self" (Njus & Johnson, 2010, p. 647). Thus, identity development is related to need for cognition because individuals try to make sense of the world with a need for cognition. However, they differ in being low or high NFC individuals. For example, high NFC individuals "naturally tend to seek, acquire, think about, and reflect back on information to make sense of stimuli, relationships, and events in the world" and have "active, exploring minds" (Cacioppo & Petty, 1982, p. 119) while low NFC individuals choose not to engage in effortful and complex thought. Contrary to high NFC individuals, "low NFC individuals rely on less effortful peripheral cues, such as cognitive heuristics or the advice of others" (Cacioppo & Petty, 1982, p. 120). Hence, NFC facilitates the identity search process because high NFC individuals more likely tend to think about identity (Njus & Johnson, 2010).

For a professional identity, pre-service teachers should possess educational philosophy (Mockler, 2011), a strong decision making mechanism, well-being, and effectiveness (Beijaard et al., 2004; Sammons et al., 2007). These requirements for a professional identity can be easily achieved by a high NFC individual. Thus, pre-service teachers should be more likely to think about and explore aspects of teacher identity sooner when provided with facilities to increase level of need for cognition. Thanks to their previous experiences in educational settings, pre-service teachers may start their training with ideas about what it means to be a teacher (Lamote & Engels, 2010; Chong, 2011; Meijer et al., 2011; Friesen & Besley, 2013). This perception of being a teacher can be transformed into the 'teacher identity' throughout their teacher education (Beijaard et al., 2004) with an emphasis on need for cognition. Despite its conceptualization as an individual difference, NFC can change for people across time, as Cacioppo et al. (1982) noted that NFC is "derived from past experience, buttressed by accessible memories and behavioural histories, manifest in current experience, and influential in the acquisition or processing of information relevant to dilemmas or problems" (p. 120).

Although consistent with an association between NFC and teacher identity, none of the aforementioned research links these two constructs. Need for cognition is an important element of personal and social identity development (Njus & Johnson,

2010), and pre-service teacher identity is related to both personal identity and social identity (Friesen & Besley, 2013). With these associations and the data gained from this study, it can be pronounced that pre-service teachers with higher levels of NFC would score at higher levels of early teacher identity because they are more likely to have explored aspects of their teacher identity.

Some demographic variables like gender, GPA, study year, department, schooling background, and teaching experience were also checked in data analysis. First of all, analyses conducted on early teacher identity and gender revealed that the difference between males and females in terms of early teacher identity is not significant [$T_{(447)}$ = -1,087, p> .05], so gender is not a distinctive factor for pre-service teacher identity. However, Friesen and Besley (2013) found a marginal significance with female participants who had higher levels of teacher identity. In another teacher identity study, with a different emphasis on gender issue in terms of teacher identity, Lamote and Engels (2010) reported that male participants associated teacher identity with discipline in the classroom while females linked it to student involvement. When it comes to the gender effect on need for cognition, it was again found that gender is not a distinctive factor for need for cognition in the present study. In consistent with our findings, Harman (2011) and Polat (2008) reported no gender effect on need for cognition.

Secondly, correlation coefficients of early teacher identity / need for cognition and GPA indicated that relationship between need for cognition and GPA (r= .2) and between pre-service teacher identity and GPA (r= .12) is marginal but not a significant one. Contrary to findings of the present study, Gulgoz and Sadowski (1996) adapted NFC scale to Turkish by suggesting that the ability to process information efficiently (high NFC) can be linked with greater academic achievement in an educational context.

Thirdly, the positive correlation between subjects' early teacher identity scores and their study years at education faculty (r= .45, p<.01) indicated that as participants get teacher education training in the advancing years of their education, their early teacher identity scores increase. This situation can be explained with pre-service teachers' increasing exposure to field studies, which may make them be aware of their professional identity more consciously. At this point, it can be suggested that ETIM can be applied in different levels of teacher education in order to closely follow pre-service teacher identity development in a longitudinal study.

In another research question, a one-way ANOVA was administered in order to find the relationship between students' pre-service teacher identities and their departments, and it was found that the difference between the means of Primary School and Turkish Language Teaching departments was significant with a low effect size (n^2: .03). However, this finding can be a leading example for teacher education programme organizers. Teacher education programmes can benefit from ETIM in order to determine teacher identity development in different departments and set a balance for each department.

Another important analysis in the current study is investigating the relationship between students' pre-service teacher identities and their teaching experience, and the analyses revealed that having some teaching experience is a distinctive factor for pre-service teacher identity ($U= 21793.5$, $p<.05$) and for need for cognition ($U= 21286.0$, $p<.05$). Although it is not the only element determining a proper teacher identity, experience has an important role in the construction of teacher identity as Lerseth (2013) focused on the importance of it while summarizing some key factors that affect pre-service teacher identity development: "a pre-service teacher candidate's past experiences affect his or her identity development during student teaching" (p. 122). In line with this, Cohen et al. (1955) identified *need for cognition* as "the individual's need to organize his experience meaningfully." Some studies reported that teachers are influenced by their years as students (Goodman, 1988; Calderhead & Robson, 1991). Their courses, classroom practices, and knowledge from teacher education may be factors affecting their future professional careers. Thus, it can be said that encouraging pre-service teachers to have teaching experience, not necessarily at a professional institution, may lead them to develop a proper teacher identity with a high need for cognition.

In conclusion, after all the adaptation stages were completed by investigating ETIM's psychometric properties, the findings revealed that adapted version of ETIM meets all the requirements of an adapted scale in another culture, and the total score can be used as 'ETIM score'. Moreover, it was found that pre-service teacher identity is highly correlated with need for cognition, and some demographic variables can be associated with the development of pre-service teacher identity and need for cognition.

CHAPTER FIVE

CONCLUSION AND SUGGESTIONS

5.0. PRESENTATION

This chapter presents the summary of the current study. Then, conclusions deduced from the results are given, and it is followed by some suggestions for further studies.

5.1. SUMMARY OF THE STUDY

This study investigated the relationship between pre-service teachers' early teacher identity and their need for cognition. It was also intended to investigate whether there is a relationship between prospective teachers' early teacher identity, need for cognition and their gender, GPA, study year, department, schooling background, and teaching experience. The research data was collected with the selection of the sample which consists of the students studying at Gaziantep Education Faculty (Departments of English Language Teaching, Turkish Language Teaching, Primary School Teaching, and Mathematics Teaching at Primary Education). "Early Teacher Identity Measure (ETIM)" (Friesen & Besley, 2013), adapted to Turkish by the researcher, was used to measure pre-service teacher identities of teacher candidates. The data related to the need for cognition were collected by "Need For Cognition Scale (NFCS)" (Cacioppo & Petty, 1982; adapted to Turkish by Gülgöz & Sadowski, 1996), the data related to attitudes towards teaching profession were collected by using "Attitude towards Teaching Profession Scale (ATPS)" (Çetin, 2006) and lastly, the data related to the personal information of the students were gathered by "Personal Information Form" which was designed

by the researcher. The raw data obtained from the scales were analysed by using SPSS 20 and LISREL 8.1. After completing all necessary translation and linguistic equivalence processes in a proper scale adaptation study, confirmatory and exploratory factor analyses were conducted in order to investigate ETIM's psychometric properties. The other adaptation analyses included the split-half reliability coefficient and the test-retest reliability of the scale, item discrimination analysis calculated through a comparison between the top and bottom 27% groups, and criterion validity analysis. All these analyses revealed that the adapted version of ETIM meets all the requirements of an adapted scale in another culture, and the total score can be used as 'ETIM score'. As a second important step, the relationship between early teacher identity and need for cognition was investigated through a Pearson product moment correlation, and it was found that early teacher identity and need for cognition are two separate but related constructs ($r= .62$, $p<.01$). This means that as the level of need for cognition increases, the participants' early teacher identity scores increase. Lastly, the analyses on the demographic variables revealed important results supported by the literature.

5.2. CONCLUSION

"In today's fast changing and interconnected global world, research in a variety of areas have come to see identity as an important analytic tool for understanding school and society" (Gee, 2001, p. 99). With regards to this, there is a growing interest in studying teachers' professional identity, and there are various ways of studying it. That being the case, Beijaard et al. (2004) suggest three ways of doing teacher identity research: *focusing on teachers' professional identity formation, focusing on the identification of characteristics of teachers' professional identity,* and *presenting teacher identity by using teachers' stories* (p. 750). In the current study, the focus is on the pre-service teacher identity formation by investigating its relationship with need for cognition to see teacher candidates' tendencies for engagement in and enjoy cognitive activities about their profession, and the data generated in this study yielded findings important for teacher education programmes as well as for additional research.

Evidently, obtaining a deeper understanding of a prospective teacher's teacher identity will provide useful inferences for successful educator development.

In this manner, research on teacher identity leads us to state that identity formation and teacher development are interconnected in important ways, which was clearly expressed by Bullough (1997) as follows: "Teacher identity–what beginning teachers believe about teaching and learning and self-as-a-teacher–is of vital concern to teacher education; it is the basis for meaning making and decision making… Teacher education must begin, then, by exploring the teaching self" (p. 20). By the same token, Lerseth (2013) signifies that "identity development in pre-service teacher candidates is fundamental to the future of teaching in today's educational climate. This crucial development process must continue throughout all pre-service education" (p. 11).

Certainly, there is agreement within that teacher education programmes should use their potential to facilitate teacher identity development because knowledge of pre-service teacher identity may provide fruitful information for teaching preparation programmes. Correspondingly, Lerseth (2013) stressed the importance of pre-service teacher identity by saying that "building on students' emerging professional identities from the beginning of their educational journey will provide opportunities to explore the complexity of practice and provide systematic support" (p. 40). In order to start a successful professional life, pre-service teachers should exit the teacher education programmes with a professional growth, and there must be changes over time in the behaviour, knowledge, images, beliefs, or perceptions of a novice teacher (Kagan, 1992), and they should resolve their image of self as a teacher with the realities of teaching (Kagan, 1992). In a like manner, Beijaard et al. (2000) argue that "teachers' perceptions of their professional identity affect their efficacy and professional development as well as their ability and willingness to cope with educational change and to implement innovations in their own teaching practice" (p. 751).

Lerseth (2013) touches on the subject of pre-service teacher identity by stating that:

> While insights gained from existing research are valuable in understanding how, in general, practicing teachers form their identities, it is yet unclear how pre-service and beginning teachers form their identities, and what factors contribute to or hinder their identity development, especially during their transition from completing higher education teacher preparation coursework to engaging in full-time teaching in a "real-world" classroom" (p. 13).

Each of these theoretical positions makes an important contribution to our understanding of pre-service teacher identity construction. As a part of the current study, it was assumed that need for cognition can be one of the factors associated with teacher identity development as it is one of the most important elements of learning process. As it was previously stated, individuals with high NFC are active participants of learning process by elaborating on it and by looking for new opportunities to contribute to it. Similar to the connection between learning and need for cognition, Lave and Wenger (1991) tries to explain the connection between learning and identity by saying that "learning implies becoming a different person with respect to the possibilities enabled by systems of relations. To ignore this aspect of learning is to overlook the fact that learning involves the construction of identities" (p. 30).

Granting that learning process, need for cognition and teacher identity are interconnected, this learning process can be made more meaningful for teacher candidates. Pedro (2005) states that "student teachers can be helped to become more reflective and critical given appropriate levels of support" (p. 50), and with a high level of need for cognition, beginning teachers can consciously bridge the perceived theory-practice gap (Chong et al., 2011). Having considered that construction of teacher identity involves agency which is defined as the teacher's need to be an active participant in their professional development, teacher candidates should focus on long term development instead of daily projects as a feature of need for cognition. Hence, studying on need for cognition may help teacher educators to make pre-service teachers to examine difficult and challenging teaching situations by dealing with them in more effective ways.

For these reasons, reflection can be thought as one of the main components of need for cognition and identity formation as it is 'serious and careful thought' (Beijjard et al., 2000). On that account, studies investigating reflection and teacher identity are fundamental sources for the current study. For instance, Beijjard et al. (2000) studied on teacher reflections on their experiences, and proponents of teacher identity development report that teachers should reflect on their decisions because it is crucial to improve content knowledge and their teaching skills in terms of what works and what does not work in the classroom (Schon, 1983; Beijaard et al., 2000; Alsup, 2006; Marcos, Sanchex, & Tillema, 2008). Furthermore, improved teacher practices as a result of reflection can be linked to students' academic achievement

(Lerseth, 2013). It is important to note however that reflection does not have to be a personal effort as Cohen (2010) views the significance of reflection as "a professional practice and a shared experience among teachers" (Cohen, 2010, p. 82), which is in accordance with Gee's (2001) notion that identity is identifiable and requires the participation of others.

As a matter of fact, Vygotsky (1978) discussed that individuals form opinions about the world and him/herself while interacting with society, and at the end, they develop identities. This point is also sustained by the work of Awenowicz (2009) who stated that "an individual's ability to act, learn, respond, reflect, and react based on his or her beliefs, cultural models, negotiations, and experiences contribute to the concept of identity." During this interaction, need for cognition plays an important role to form identities because individuals with high NFC are generally identity-achieved people (Njus & Johnson, 2010). Admittedly, Alsup (2006) reports that pre-service teachers with a strong sense of identity are more likely be attuned to teaching profession.

Education system needs teachers who challenge, question, and enlarge the professional role. What is expected from prospective teachers is to have high expectations of themselves and of their students, to take accountability of their professional development, to improve their teaching skills and field knowledge, to anticipate change and promote innovation. All of these can be easily managed by making them aware of their teacher identity and need for cognition.

Beijaard et al. (2000) report that teacher identity affects teacher efficacy, professional development, and willingness to adapt innovative ideas. By the same token, one of the important aspects of need for cognition is that individuals with high levels of NFC tend to find new ways of doing something by deliberately thinking on it. In that case, a teacher with a high level of NFC is expected to develop new ideas about her/his profession by having a profound teacher identity. Beijaard et al. (2004) reflect on the above ideas by stating that "professional identity is not something teachers have, but something they use in order to make sense of themselves" (p. 751). Then, pre-service teachers with an achieved early teacher identity and a high level of need for cognition can set and achieve goals, think strategically, be resilient when faced with adversity and stress.

If pre-service teachers start thinking actively on their profession, they may start to see "teaching as being a complex and dynamic activity rather than as a

behaviourist enterprise" (Pedro, 2005, p. 52), and they will be more likely to think about and explore aspects of teacher identity sooner when provided with facilities to increase level of need for cognition. Awenowicz (2009) states that:

> …understanding how teacher identities develop and the tensions that pre-service teachers confront during the teacher education program is critical; the pre service teacher needs to be made aware of the social and political influences on them so that they can purposefully and thoughtfully engage in, react to, and dialogue with differing subjectivities rather than passively being impacted by them (p. 24).

The idea expressed in the quotation embodies the view that pre-service teachers need to be triggered to be active thinkers on their profession as all experiences become sites of potential change and renewal for them. Considering this, if teacher education programmes lay the foundations on pre-service teacher identity, they can create situations that allow pre-service candidates to reflect on and analyse their identity development.

However, it is important to note that teacher professional identity consists of sub-identities, and when there are conflicts among these identities, tension may arise. In this respect, it is of importance for teacher candidates to balance these conflicts by deeply thinking on them. Thus, teacher educators should promote and support pre-service teachers' reflective practices on their professional identity throughout their education, and classrooms must be used as a site of inquiry at education faculties. Educators should create opportunities and experiences that help candidates consider and negotiate their developing professional identities.

In conclusion, this study reports that pre-service teacher identity is highly correlated with need for cognition. The results can lead to further investigation on teacher identity. Moreover, teacher educators, teacher preparation faculties, school administrators and teachers themselves can benefit from these studies. If prospective teachers are encouraged to be individuals with high NFC, they can pay more attention to their future teaching profession, and construct their teacher identities in confidence. Therefore, teacher education programmes should provide the space, time, and experiences to allow pre-service teacher candidates to examine their professional identity.

5.3. PEDAGOGICAL IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Based on the results of the research, connected with the conclusion of the study, some suggestions can be given. The practical applications of the findings of this study may help teacher education faculties to have well-established programmes for prospective teachers because identifying students' pre-service teacher identities may guide the explanations on teacher development, and investigating early teacher identity can reveal important implications vital for classroom practice in teacher education institutions.

> Students rely on life-course experiences that inform their early teacher identity. Therefore, teacher educators may need to sensitively challenge students' pre-conceived notions of what it means to be a teacher, as many students at entry to a teacher education program may not have taken the time to adequately explore why they want to be a teacher" (Friesen & Besley, 2013, p. 31).

As Bullough (1997) recommended, teacher education must begin by examining the teaching-self because beginning teachers' beliefs about teaching and learning affects their meaning-making and decision making within the classroom setting. Therefore, by investigating on different situations fostering or hindering teacher identity development, teacher preparation programmes can provide more opportunities for pre-service teacher candidate's identity development and can support students to develop their own ideas and philosophy of teaching while constructing their teacher identities.

Lerseth (2013) comes up with the idea that "examining pre-service teacher candidates' professional identity formation can help teacher educators determine what factors contribute to different outcomes for individual students" (p. 32). Researchers can make use of various theories to find the factors related with teacher identity. For example, teacher education programmes can benefit from psychological theory to study on teacher identity development (Friesen & Besley, 2013). Bearing this in mind, in the present study, one of the possible factors (need for cognition) contributing to teacher identity construction was investigated. As need for cognition is one of the main components of meaning making and decision making process (Petty et al., 2009; Berzonsky & Sullivan, 1992; Boyle et al., 1998; Singer et al.,

1998), high levels of pre-service teacher identity and need for cognition are what teacher education programmes must study for.

Despite its conceptualization as an individual difference, NFC can change for people across time. As Cacioppo et al. (1996) noted, NFC is "derived from past experience, buttressed by accessible memories and behavioural histories, manifest in current experience, and influential in the acquisition or processing of information relevant to dilemmas or problems" (p. 204). To promote need for cognition in teacher education institutions, reflective practices can be used as the basis of the activities; such as, narrative storytelling, reflective journals, critical incident technique, reflective group discussions, and problem-based learning.

People differing in low and high NFC also differ in their interpersonal skills. Research suggests that people high in NFC are more involved in small-group settings (Henningsen & Henningsen, 2004; Shestowsky & Horowitz, 2004). Although there may occur deadlock conversations in a social setting because individuals low in NFC do not defend their ideas eagerly, when they receive training on their interpersonal skills, they can adapt their behaviour in a way that enhances group performance (Brinol et al., 2007). In this respect, pre-service teachers can be provided with such training so that they can optimize their teacher identities and easily manage communication and interaction in their future classes.

Teachers who leave the profession at the initial years of their career are another concern that education system should deal with. Hong (2010) reports that "hiring and continuing staff development are huge burdens on public schools because over 2.6 billion dollars is spent annually on recruiting and managing teachers due to high rates of teacher turnover" (p. 1535). Since some studies report that teacher identity and intentions to leave the profession are interrelated (Moore & Hofman, 1988; Gaziel, 1995; Schepens et al., 2009), the current study can play a leading role to study the relationship between teacher identity and voluntary teacher withdrawal. Hong (2010) also criticizes that the number of studies on teachers' decision-making and meaning making process is quite limited because "current studies have focused on demographic characteristics of the individual teachers such as gender, age, ethnicity, or marital status, or school characteristics such as average class size, expenditure, poverty enrolment, students' demographics and minority enrolment" (p. 1540). By elaborating on this idea, the present study aims to be an example for

further studies by studying on teacher identity construction and elements associated with it.

It is hoped that the knowledge gained from the study will provide a foundation for future research on teacher identity. Since teacher identity is an important aspect of effective teacher development, future studies can study the impact of teacher identity on teacher effectiveness. Another alternative can be to use research on pre-service teacher identity to investigate the relationship between identity development and successful student teaching placements. Moreover, future research can focus on measuring the variables respectively at the beginning, during teacher education, and at graduation. In other studies, a follow-up procedure can be conducted to investigate the difference between the first and last years of pre-service teachers at teacher training education by also testing the effectiveness of teacher training programme.

Lastly, an experimental study can be conducted with a need for cognition training program in order to distinguish the impact of need for cognition on pre-service teacher identity development. In addition, in order to nurture pre-service teachers' need for cognition; teacher educators should be aware of the concept. For this reason, in another study, a training program for teacher educators can be developed by using qualitative methods such as interviews and classroom observations.

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APPENDICES

APPENDIX A. TRANSLATION FORMS FOR SCALE ADAPTATION STUDIES

APPENDIX A.1. Form For Turkish Translation

EARLY TEACHER IDENTITY MEASURE

a) Self-Categorization

1. I see myself as a teacher (either currently or one day).
-
2. I feel comfortable identifying myself as a teacher.
-
3. I am a natural teacher.
-
4. I can easily see myself working with children/adolescents and helping them to learn and develop.
-
5. I find it difficult to see myself in charge of teaching a group of children/adolescents. (R)
-

b) Confidence in becoming a teacher

6. I often doubt if I am the right person to become a teacher. (R)
-
7. I have confidence in my ability to one day be a good teacher.
-
8. I am satisfied with the progress I am making in my teacher education.
-
9. I have no idea what it means to be a good teacher. (R)
-
10. I am confident that I will develop the resources and strategies necessary to be a good teacher.
-
11. I often doubt my ability to be a good teacher. (R)
-

c) Participation as a teacher

12. I look for opportunities to work with children/adolescents in my own time.
-
13. I enjoy helping out with children's activities.
-
14. Family and friends often look to me when it comes to caring for or working with children/adolescents.
-
15. If I had more time to volunteer my services, I would choose to work with children.
-
16. I enjoy helping children discover and learn.
-
17. Helping a child learn something new is very rewarding.

Suggestions:

APPENDIX A.2. A sample from the Form for Expert Opinion

EARLY TEACHER IDENTITY MEASURE

a) Self-Categorization

1. I see myself as a teacher (either currently or one day).

Translation 1-

Translation 2-

Translation 3-

2. I feel comfortable identifying myself as a teacher.

T1-

T2-

T3-

3. I am a natural teacher.

T1-

T2-

T3-

4. I can easily see myself working with children/adolescents and helping them to learn and develop.

T1-

T2-

T3-

5. I find it difficult to see myself in charge of teaching a group of children/adolescents. (R)

T1-

T2-

T3-

Suggestions:

APPENDIX A.3. Form For Back Translation in English

MESLEK ÖNCESİ ÖĞRETMEN KİMLİĞİ ÖLÇEĞİ

a) Kendini Sınıflandırma

1. Kendimi öğretmen olarak görüyorum.
-
2. Kendimi rahatlıkla öğretmen olarak nitelendirebilirim.
-
3. Öğretmenlik doğamda var.
-
4. Kendimi kolaylıkla çocuklarla veya erişkinlerle çalışırken hayal edebiliyorum.
-
5. Kendimi bir grup çocuk veya erişkine öğretmenlik yaparken düşünmekte zorlanıyorum.
-

b) Öğretmen olma konusunda kendine güven

6. Öğretmen olmak için doğru kişi olup olmadığıma dair sıklıkla şüphe duyarım.
-
7. Bir gün iyi bir öğretmen olacağımdan eminim.
-
8. Öğretmenlik eğitimimde gösterdiğim gelişmeden memnunum.
-
9. "İyi bir öğretmen" olmanın ne olduğu hakkında hiçbir fikrim yok.
-
10. İyi bir öğretmen olmak için gereken beceri ve de yöntemleri geliştirebileceğimden eminim.
-
11. İyi öğretmen olma konusundaki yeterliliğimden emin değilim.
-

c) Öğretmen olarak katılım

12. İşlerimden arda kalan zamanda çocuk veya erişkinlerle çalışmak için fırsat kollarım.
-
13. Çocuklarla ilgili etkinliklere yardımcı olmaktan hoşlanırım.
-
14. Ailem ve arkadaşlarım çocuk veya erişkinlerle çalışma ve onlarla ilgilenme konusunda bana sıklıkla danışırlar.
-
15. Gönüllü çalışmak için daha çok zamanım olsaydı, çocuklarla çalışmayı tercih ederdim.
-
16. Çocukların yeni şeyler keşfetmesine ve öğrenmesine yardımcı olmaktan zevk duyarım.
-
17. Bir çocuğa yeni bir şey öğretmek tatmin edicidir.
-

Suggestions:

APPENDIX A.4. A sample from the Form for Expert Opinion

MESLEK ÖNCESİ ÖĞRETMEN KİMLİĞİ ÖLÇEĞİ

a) Kendini Sınıflandırma

1. Kendimi öğretmen olarak görüyorum.
Translation 1-

Translation 2-

Translation 3-

2. Kendimi rahatlıkla öğretmen olarak nitelendirebilirim.
T1-

T2-

T3-

3. Öğretmenlik doğamda var.
T1-

T2-

T3-

4. Kendimi kolaylıkla çocuklarla veya erişkinlerle çalışırken hayal edebiliyorum.
T1-

T2-

T3-

5. Kendimi bir grup çocuk veya erişkine öğretmenlik yaparken düşünmekte zorlanıyorum.
T1-

T2-

T3-

Suggestions:

APPENDIX B. QUESTIONNAIRES

APPENDIX B.1. Early Teacher Identity Measure and Need For Cognition Scale (ENGLISH VERSION)

Dear Students,

This scale is a part of scientific study which is entitled "An Investigation On The Relationship Between Prospective Teachers' Early Teacher Identity and Their Need For Cognition", which was conducted at Gaziantep University, Institute of Educational Sciences. The data gathered from this scale will only be used for scientific purposes. There are four parts in this study, and the average duration of filling it out is about 15 minutes. After reading each statement, please put a mark on the cell which is most appropriate to you like in the example below. Please, answer all the statements, and do not write your names on the sheet provided.

Thank you very much for your participation in advance.

Res. Assist. Dilara ARPACI
Gaziantep University
Master of Arts Student

		Strongly Disagree	**Disagree**	**Uncertain**	**Agree**	**Strongly Agree**
1.	I have always wanted to become a teacher.		×			

Part A : Please choose the best option.

- Cinsiyet: Male ( ) | Female ( )

- Department: _____

- GPA: _____

- Study Year:

Preparatory Class ( )	1st year ( )	2nd year ( )	3rd year ( )	4th year ( )

- Schooling Background (Graduated Highschool):
_____

- Have you ever had a kind of teaching experience? (private course, language school, etc.)

Yes ( )	No ( )

Part B: Please choose the best option.

		Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1.	I see myself as a teacher (either currently or one day).					
2.	I feel comfortable identifying myself as a teacher.					
3.	I am a natural teacher.					
4.	I can easily see myself working with children/adolescents and helping them to learn and develop.					
5.	I find it difficult to see myself in charge of teaching a group of children/adolescents.					
6.	I often doubt if I am the right person to become a teacher.					
7.	I have confidence in my ability to one day be a good teacher.					
8.	I am satisfied with the progress I am making in my teacher education.					
9.	I have no idea what it means to be a good teacher.					
10.	I am confident that I will develop the resources and strategies necessary to be a good teacher.					
11.	I often doubt my ability to be a good teacher.					
12.	I look for opportunities to work with children/adolescents in my own time.					
13.	I enjoy helping out with children's activities.					
14.	Family and friends often look to me when it comes to caring for or working with children/adolescents.					
15.	If I had more time to volunteer my services, I would choose to work with children.					
16.	I enjoy helping children discover and learn.					
17.	Helping a child learn something new is very rewarding.					

Part C: Please choose the best option.

		Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1.	I prefer complex to simple problems.					
2.	I like to have the responsibility of handling a situation that requires a lot of thinking.					
3.	Thinking is not my idea of fun.					
4.	I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.					

5.	I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something.					
6.	I find satisfaction in deliberating hard and for long hours.					
7.	I only think as hard as I have to.					
8.	I prefer to think about small daily projects to long term ones.					
9.	I like tasks that require little thought once I've learned them.					
10.	The idea of relying on thought to make my way to the top appeals to me.					
11.	I really enjoy a task that involves coming up with new solutions to problems.					
12.	Learning new ways to think doesn't excite me very much.					
13.	I prefer my life to be filled with puzzles I must solve.					
14.	The notion of thinking abstractly is appealing to me.					
15.	I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.					
16.	I feel relief rather than satisfaction after completing a task that requires a lot of mental effort.					
17.	It's enough for me that something gets the job done; I don't care how or why it works.					
18.	I usually end up deliberating about issues even when they do not affect me personally.					

APPENDIX B.2. Early Teacher Identity Measure, Need For Cognition Scale, and Attitude towards Teaching Profession Scale (TURKISH VERSION)

Sevgili Öğrenci,

Bu çalışma Gaziantep Eğitim Fakültesi'nde okuyan öğrencilerin meslek öncesi öğretmen kimliklerini ve düşünme-bilme eğilimleri ile bundan hoşlanma düzeylerini belirlemeyi amaçlamaktadır. Bu ölçekten elde edilen veriler Gaziantep Üniversitesi, İngiliz Dili Eğitimi bölümünde yürütülen tez çalışmasında kullanılacaktır. Bu ölçekte toplam dört bölüm bulunmaktadır. A bölümü kişisel bilgi formu olarak tasarlanmıştır. B bölümü 17, C bölümü 18 ve D bölümü 35 ifadeden oluşmaktadır. Cevaplama süresi yaklaşık 15 dakikadır. Her bir ifadeyi okuduktan sonra, buna ne derece katıldığınızı ya da katılmadığınızı size verilen kâğıt üzerinde aşağıdaki örneğe uygun olarak işaretleyiniz. Lütfen, her ifadeyi işaretleyiniz. Size verilen kâğıt üzerine adınızı yazmayınız, kimliğinizi belirtecek herhangi bir işaret koymayınız.

Çalışmaya verdiğiniz katkıdan dolayı şimdiden teşekkürler.

Arş. Gör. Dilara ARPACI
Gaziantep Üniversitesi
Yüksek Lisans Öğrencisi

		Hiç Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Tamamen Katılıyorum
1.	Her zaman bir öğretmen olmak istemişimdir.		×			

BÖLÜM A : Lütfen size en uygun olan seçeneği işaretleyiniz.

- Cinsiyet: Erkek ( ) | Kadın ( )

- Bölümünüz:_____

- Ortalama: _____

- Sınıf:

Hazırlık ( )	1. sınıf ( )	2. sınıf ( )	3. sınıf ( )	4. sınıf ( )

- Mezun olduğunuz lise:

Genel Lise ( )	Sosyal Bilimler Lisesi ( )
Süper Lise ( )	Meslek Lisesi ( )
Endüstri Meslek Lisesi ( )	Anadolu Öğretmen Lisesi ( )
Anadolu Lisesi ( )	Güzel Sanatlar Lisesi ( )
Anadolu Meslek Lisesi ( )	İmam Hatip Lisesi ( )
Polis Koleji( )	Fen Lisesi ( )
Askeri Lise ( )	Özel Lise ( )
Diğer (……..)	

- Öğretmenliğe dair bir tecrübeniz oldu mu? (özel ders, kurs, dershane, vb.)

Evet ( )	Hayır ( )

BÖLÜM B: Lütfen size en uygun olan seçeneği işaretleyiniz.

		Hiç Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Tamamen Katılıyorum
1.	Öğretmen olmak için doğru kişi olup olmadığımdan sıklıkla şüphe duyarım.					
2.	Gönüllü çalışmak için daha çok zamanım olsaydı, çocuklarla çalışmayı tercih ederdim.					
3.	"İyi bir öğretmen" olmanın ne olduğu hakkında hiçbir fikrim yok.					
4.	Çocuk veya erişkinlerle çalışma ve onlarla ilgilenme konusunda ailem ve arkadaşlarım bana sıklıkla danışırlar.					
5.	Kendimi öğretmen olarak görüyorum.					
6.	Çocukların yeni şeyler keşfetmesine ve öğrenmesine yardımcı olmaktan zevk duyarım.					
7.	İyi öğretmen olma konusundaki yeterliliklerimle ilgili sıklıkla şüphe duyarım					
8.	Kendimi çocuklarla veya erişkinlerle çalışırken ve onların gelişimine yardımcı olurken kolaylıkla hayal edebiliyorum.					
9.	Kendimi rahatlıkla öğretmen olarak nitelendiririm.					
10.	Kendimi bir grup çocuk veya erişkine öğretmenlik yaparken düşünmekte zorlanıyorum.					
11.	İyi bir öğretmen olmak için gerekli beceri ve yöntemleri geliştirebileceğimden eminim.					
12.	Bir gün iyi bir öğretmen olacağımdan eminim.					
13.	Boş zamanlarımda çocuk veya erişkinlerle çalışmak için elimden geleni yaparım.					
14.	Bir çocuğun yeni bir şey öğrenmesine yardımcı olmak benim için mutluluk vericidir.					
15.	Çocuklara etkinliklerinde yardım ederken mutlu oluyorum.					
16.	Öğretmenlik eğitimimde gösterdiğim ilerlemeden memnunum.					
17.	Öğretmenlik doğamda var.					

BÖLÜM C: Lütfen size en uygun olan seçeneği işaretleyiniz.

		Hiç Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Tamamen Katılıyorum
1.	Karmaşık problemleri basit problemlere yeğlerim.					
2.	Çok düşünmemi gerektiren bir işin sorumluluğunu almak hoşuma gider.					
3.	Düşünmek benim için bir eğlence biçimi değildir.					
4.	Düşünme yeteneğimi zorlayacak bir şey yapmaktansa, az düşünmemi gerektirecek şeyleri yapmayı tercih ederim.					
5.	Bir mesele hakkında derin düşünmemi gerektirecek durumları önceden sezip, onlardan uzak durmaya çalışırım.					

		Hiç Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Tamamen Katılıyorum
6.	Bir sorunu kafamda uzun süre yoğun bir biçimde tartışmak hoşuma gider					
7.	Sadece koşulların gerektirdiği kadar derin düşünürüm.					
8.	Uzun süreli işlere kafa yormaktansa; küçük, günlük meseleler hakkında düşünmeyi tercih ederim.					
9.	Nasıl yapıldığını öğrendikten sonra fazla düşünmeyi gerektirmeyecek işleri tercih ederim.					
10.	İşimde, düşünme yeteneğime güvenerek yükselme fikri bana çekici gelir.					
11.	Sorunlara yeni çözümler bulmayı gerektiren işler bana zevk verir.					
12.	Yeni düşünce biçimleri öğrenmek bana pek heyecan vermez.					
13.	Yaşamımın, çözmem gereken bulmacalar ile dolu olmasını yeğlerim.					
14.	Soyut düşünme eylemi bana çekici gelir.					
15.	Orta önemde, fazla düşünmemi gerektirmeyen bir işi yapmaktansa; fazla düşünmemi gerektiren, zor ve önemli bir işi yapmayı tercih ederim.					
16.	Çok zihinsel çaba gerektiren bir işi tamamladığımda; başarmaktan doğan bir tatminden ziyade, bitirip kurtulmuş olmanın verdiği rahatlama duygusunu hissederim.					
17.	Bence bir nesnenin, kendisinden beklenen işi görmesi önemlidir; işi neden ve nasıl gördüğü ilgimi çekmez.					
18.	Kişisel olarak beni etkilemesi söz konusu olmasa bile, birçok değişik konuda düşünürüm.					

BÖLÜM D: Lütfen size en uygun olan seçeneği işaretleyiniz.

		Hiç Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Tamamen Katılıyorum
1.	Benim için en ideal meslek öğretmenliktir.					
2.	Bir ömür boyu öğretmenlik yapabilirim.					
3.	Mesleğimle ilgili faaliyetleri yapmak bana hiç zevk vermiyor.					
4.	Öğretmenlik benim için bir tutkudur.					
5.	Öğretmenliğin bence hiçbir cazip yanı yoktur.					
6.	Öğretmenlik mesleğindeki tecrübem arttıkça bu mesleğe daha çok bağlanacağıma inanıyorum.					
7.	Bu mesleğin bana çok şey kazandıracağını düşünmüyorum.					
8.	Öğretmenlikten alacağım manevi doyumu hiçbir şeye değişmem.					
9.	Bu mesleği yapmaktan kimse beni alıkoyamaz.					

		Hiç Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Tamamen Katılıyorum
10.	Öğretmenliğin kişiliğime uygun bir meslek olduğunu düşünmüyorum.					
11.	Bu mesleği bilerek ve isteyerek seçtim.					
12.	Öğretmenlikten alacağım hazzın bana bu mesleğin tüm zorluklarını unutturacağına inanıyorum.					
13.	Öğretmenlik mesleğini sevmiyorum.					
14.	İnsanlara bir şeyler öğretmeyi sevdiğim için bu mesleği seçtim.					
15.	Benden yeni bir meslek seçmem istense hiç tereddütsüz yine öğretmenlik mesleğini seçerdim.					
16.	Bu meslekte her zaman öğrenme ve öğretme heyecanı duyacağımı zannetmiyorum.					
17.	İleride bu meslekte başarılı olabilmek için çok çalışıyorum.					
18.	Öğretmenlik mesleğinin beni ne maddi ne de manevi açıdan tatmin edeceğini zannetmiyorum.					
19.	Öğretmenlik mesleğini layıkıyla yapacağıma inanıyorum.					
20.	Derslerden ve öğretmenlerden bıktığım için öğretmenlik benim için yapacağım mesleklerin en sonuncusudur.					
21.	Öğretmenlik bilginin yanı sıra yetenek gerektiren bir meslektir.					
22.	Öğretmenlik paylaşımın en yoğun yaşandığı bir meslektir.					
23.	Ancak çok zorda kalırsam bu mesleği yapmayı düşünebilirim.					
24.	Öğretmen olacağımı düşündükçe mutsuz oluyorum.					
25.	Bu mesleği öğrendikçe ciddiyetini daha iyi anlıyorum.					
26.	Daha iyi bir meslek bulursam bir an bile öğretmenlik yapacağımı zannetmiyorum.					
27.	Öğretmenlik özveri isteyen bir meslektir.					
28.	Öğretmenlik onurlu bir meslektir.					
29.	Öğretmenlik gibi çileli bir mesleğe başlamaktan çekiniyorum.					
30.	Öğretmenlik mesleği hasta toplumları kurtaracak bir ilaç gibidir.					
31.	Sürekli kendini yenileme düşüncesi bu mesleği yapma konusunda beni düşündürüyor.					
32.	Öğretmenlik mesleği bir daha düzelmeyecek kadar yıpranmış bir meslektir.					
33.	Öğretmenlik vicdani boyutu önemli olan mesleklerin başında gelmektedir.					
34.	Sürekli bir sınıfta hapsolmak beni sinirlendirir.					
35.	Öğretmenlik çok sabır isteyen bir meslektir.					

APPENDIX C. ITEM-TOTAL STATISTICS FOR THE ETIM

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
ETIM 1	61.81	124.23	.67	.92
ETIM 2	61.89	128.89	.55	.93
ETIM 3	61.44	129.60	.54	.93
ETIM 4	62.15	128.77	.51	.93
ETIM 5	61.83	126.01	.66	.92
ETIM 6	61.48	125.84	.69	.92
ETIM 7	62.00	126.31	.60	.93
ETIM 8	61.64	127.10	.71	.92
ETIM 9	61.94	127.07	.66	.92
ETIM 10	61.70	125.92	.67	.92
ETIM 11	61.48	129.08	.65	.92
ETIM 12	61.40	127.67	.68	.92
ETIM 13	61.92	127.16	.60	.93
ETIM 14	61.30	127.64	.69	.92
ETIM 15	61.39	126.40	.72	.92
ETIM 16	61.79	127.33	.63	.92
ETIM 17	61.99	123.14	.74	.92

APPENDIX D. FREQUENCY TABLE FOR THE ETIM

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
ETIM 1	%29.4	%40.3	%11.8	%14.0	%4.5
ETIM 2	%10.2	%20.9	%3.3	%45.7	%19.9
ETIM 3	%42.3	%39.4	%8.9	%7.6	%1.8
ETIM 4	%6.2	%15.8	%20.7	%44.3	%12.9
ETIM 5	%4.2	%8.2	%21.2	%41.6	%24.7
ETIM 6	%3.8	%6.2	%5.6	%45.9	%38.5
ETIM 7	%21.6	%39.0	%19.4	%15.6	%4.5
ETIM 8	%2.4	%5.1	%16.0	%49.9	%26.5
ETIM 9	%2.7	%9.1	%30.5	%38.1	%19.6
ETIM 10	%29.6	%44.3	%13.4	%9.4	%3.3
ETIM 11	%1.6	%3.8	%12.2	%49.0	%33.4
ETIM 12	%2.4	%3.1	%10.9	%41.4	%42.1
ETIM 13	%4.5	%11.4	%18.3	%46.3	%19.6
ETIM 14	%2.4	%4.0	%4.0	%43.0	%46.5
ETIM 15	%3.3	%3.6	%6.2	%45.4	%41.4
ETIM 16	%3.3	%7.1	%22.0	%42.5	%24.9
ETIM 17	%6.5	%8.2	%27.4	%36.3	%21.6

CURRICULUM VITAE

Dilara ARPACI was born in Adana in 1989. She is a graduate of Middle East Technical University – Foreign Languages Education Department – English Language Teaching Program (2011). She also has a 'Certificate in English Language Teaching to Adults' (CELTA) obtained from University of Cambridge (2012). She worked as an English instructor at İstanbul Kültür University – School of Foreign Languages (2011-2013), and she has been working as a research assistant at Gaziantep University, Foreign Languages Education Department – English Language Teaching Program since 2013. She speaks English fluently. She also has basic German skills.

ÖZGEÇMİŞ

Dilara ARPACI 1989'da Adana'da doğmuştur. Orta Doğu Teknik Üniversitesi – Yabancı Diller Eğitimi Bölümü – İngiliz Dili Eğitimi Programı'ndan mezundur (2011). Aynı zamanda Cambridge Üniversitesi'nden 2012 yılında alınmış bir 'Certificate in English Language Teaching to Adults' (CELTA) sertifikasına da sahiptir. 2011 ve 2013 yılları arasında İstanbul Kültür Üniversitesi – Yabancı Diller Yüksekokulu'nda okutman olarak çalışmıştır. 2013 yılından beri de Gaziantep Üniversitesi - Yabancı Diller Eğitimi Bölümü – İngiliz Dili Eğitimi Programı'nda araştırma görevlisi olarak çalışmaktadır. İyi derecede İngilizce konuşmaktadır. Aynı zamanda temel Almanca bilgisine sahiptir.