

# An Investigation on the Relationship between Prospective Teachers' Early Teacher Identity and Their Need for Cognition

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## Abstract

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. The research data was collected with the sample which consists of 449 students studying at Gaziantep Education Faculty. "Early Teacher Identity Measure (ETIM)" 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)", and the data related to the personal information of the students were gathered by "Personal Information Form". The relationship between early teacher identity and need for cognition was analysed 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.

**Key words:** teacher identity, early teacher identity, need for cognition

<sup>1</sup>This study is adapted from a thesis study, MA (2015).

## 1. Introduction

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.

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.

The notion of ‘need for cognition’ has been developed by Cohen, Stotland, and Wolfe (1955). They 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).

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.

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 (Volkman & 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, Briñol, Loersch, and McCaslin (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 main problem statement of this study: “Is there a relationship between prospective teachers’ early teacher identities and their need for cognition?”

### 1.1 Teacher Identity

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).

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, (Connelly & Clandinin, 1999; Sford & Prusak, 2005), variety of discourses (Alsup, 2006), and metaphors guiding teacher’s understanding of the role (Hunt, 2006) were some of the ways by which researchers have investigated teacher identity.

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, Aelterman, & Vlerick, 2009).

### 1.2 Pre-Service Teachers’ Teacher Identity

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. 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). 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. 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). As a consequence, student teachers are “active players in the process of their own professional development” (Schepens et al., 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 (Korthagen, 2004, p. 79).

In order to present various levels of personal and professional change, Korthagen (2004) offered ‘the onion-model’ (see Figure 1).

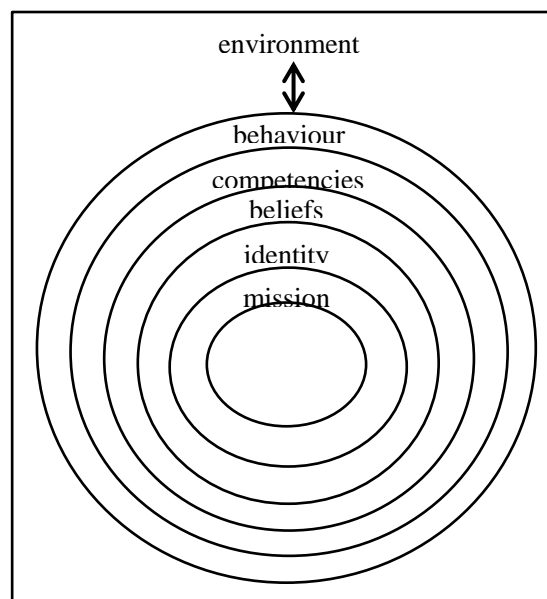


Figure 1. Levels of personal and professional change in teacher education

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*).

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).

### 1.3 Need for Cognition

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).

Cacioppo, Petty, Feinstein and Jarvis (1996) stated that 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).

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).

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. 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 (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, Kilic, & Coskun, 2012, p. 149). In this way, pre-service teachers can focus on their profession with a high need for cognition.

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.

This study aims to find answers to the following questions:

**Research question # 1** Is there a relationship between students’ pre-service teacher identity and their need for cognition?

**Research question # 2** Is there a relationship between students’ pre-service teacher identity and demographic variables (gender, GPA, study year, department, schooling background, teaching experience)?

## 2. Method

### 2.1 Research Design and Population

The current study is a descriptive analysis of the pre-service teacher identity levels of 449 students at a university, education faculty, in the province of Gaziantep in Turkey and aims at finding its relation with students’ need for cognition. The study will focus on the students’ early teacher identity and need for cognition profiles and their relations to each other by also commenting on the relationship between early teacher identity and some demographic qualities of the participants (i.e. 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 the Faculty of Education (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.

### 2.2 Instruments

#### *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.

In the present study, ETIM was adapted into Turkish and Turkish culture by testing its reliability and validity on a sample consisting of education faculty students so that it could be used in this study. After all translation, linguistic equivalence, piloting stages, a confirmatory factor analysis 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. 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, 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. After all these analyses, it was found that this scale is reliable and valid enough to use in a Turkish context.

#### *Need For Cognition Scale (NFCS)*

Petty and Cacioppo (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, Petty, & Kao, 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).

Sadowski and Gulgoz (1996) 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 (1997) have shown, 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. Results**

#### *3.1 Descriptive Analyses*

In the descriptive statistics for the NFCS, the minimum score 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 Cronbach’s Alpha is .90 for the NFCS. As for ETIM, the range for the total scores 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 Cronbach’s Alpha is .93 after the factor analyses.

#### *3.2 Inferential Analyses*

*Research question # 1 Is there a relationship between students’ pre-service teacher identity and their need for cognition?*

Pearson product moment correlation which is the most commonly used type of correlation 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. 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 the first assumption of the study suggesting a relationship between early teacher identity and need for cognition.

*Research question # 2 Is there a relationship between students' pre-service teacher identity and some demographic variables like gender, GPA, study year, department, schooling background, teaching experience?*

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.

An independent samples t-test was used to find out 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.

After a Pearson product moment correlation was administered to find whether there is a relationship between students' pre-service teacher identity and their GPAs, correlation coefficient demonstrated that the relationship between pre-service teacher identity and GPA is not a significant one ( $r = .12$ ).

The study made use of another Pearson product moment correlation for students' pre-service teacher identity and their study year. 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.

The relationship between students' pre-service teacher identity and their departments was investigated by using a one-way ANOVA.

Table 1. 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. It was found that the difference between the means of departments of primary school and Turkish language teaching is significant (sig. =  $.001 < .05$ ) with a small effect size of .03 (Green & Salkind, 2005).

With another one-way ANOVA, relationship between students' pre-service teacher identity and their schooling background was investigated. 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.

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.

#### 4. Discussion

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 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 (Britzman, 2003; Korthagen, 2004) 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, Zamboanga, Wang, & Olthuis, 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, Alsop (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. 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 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. 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. At this point, 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, a strong decision making mechanism, well-being, and effectiveness (Beijaard et al., 2004). 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.

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.

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 small effect size (.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." 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, 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.

## 5. 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).

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.

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 supposing that 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.

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 experience to allow pre-service teacher candidates to examine their professional identity.

## 6. Pedagogical Implications

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), 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.

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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