Adaptation of Early Teacher Identity Measure into Turkish[1]

Meslek Öncesi Öğretmen Kimliği Ölçeğinin Türkçe'ye Uyarlanmasi

Dilara ARPACI[*]
Gaziantep Üniversitesi

Mehmet BARDAKÇI[**]
Gaziantep Üniversitesi

Abstract

Identifying teacher education programme 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. Therefore, a Turkish scale to measure pre-service teacher identity is needed. The aim of this study was to adapt Early Teacher Identity Measure (ETIM) by Friesen and Besley (2013) into Turkish and to investigate this scale's psychometric properties. The sample of the study consisted of 449 students at teacher education programmes at Gaziantep Faculty of Education. After completing all necessary translation and linguistic equivalence processes, 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'.
Key words: Teacher identity, Pre-service teacher identity, Scale adaptation

Özet

Eğitim fakültesi öğrencilerinin meslek öncesi öğretmen kimliklerini belirlemek öğretmen geliştirmeye ve öğretmen yetiştirme kurumlarındaki uygulamalara katkı sağlayabilir. Bu nedenle, çalışmanın temel amacı eğitim fakültesindeki öğrencilerin meslek öncesi öğretmen kimliklerini belirleyebilmek için Türkçe'ye bir ölçek uyarlamaktır. Çalışma verileri Gaziantep Üniversitesi, Eğitim Fakültesinde farklı bölümlere devam eden 449 öğrencinin oluşturduğu örneklemden toplanarak elde edilmiştir. Uyarlama çalışması için Meslek Öncesi Öğretmen Kimliği Ölçeği (Friesen &Besley, 2013) kullanılmıştır.
Ölçek uyarlama çalışması için gerekli olan tüm çeviri ve dil eşdeğerliliği çalışmaları tamamlandıktan sonra, Meslek Öncesi Öğretmen Kimliği Ölçeğinin psikometrik özelliklerini incelemek için açımlayıcı ve doğrulayıcı faktör analizleri uygulanmıştır. Uyarlama aşaması kapsamında gerçekleştirilen diğer çalışmalar iki-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. Sonuç olarak, 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.

Anahtar Kelimeler: Öğretmen kimliği, Meslek öncesi öğretmen kimliği, Ölçek uyarlama

Introduction

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 in terms of their professional, personal identities. In order to bring explanations on this issue, the number of studies on teacher identity has increased, and the concept of teachers' professional identity has gained attention from the teacher education studies as an important evolving research area (Beijaard, Meijer, &Verloop, 2004).

Teacher Identity

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, 1985; 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 who develop a rich, well-rounded identity, or sense of self are truly successful over the long term (Alspup, 2004).

Teacher identity development lays its foundations on the years of teacher education as this is the time when pre-service teachers encounter with their profession. Having a well-founded teacher identity during teacher education may have a positive effect on prospective teachers' future profession.

Therefore, studies on pre-service teachers' teacher identity provide important implications for teaching profession.

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 (Yunus, Malik, &Zakaria, 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). 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, Aelterman, &Vlerick, 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).
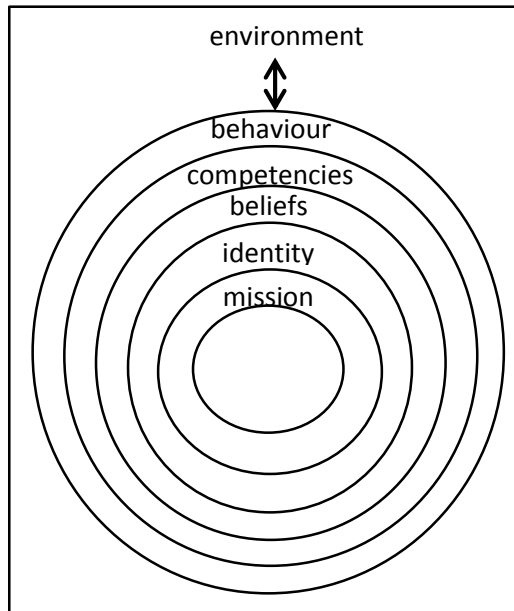
Figure 1. Levels of personal and professional change in teacher education

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*).

By looking at those similar stages, it is not difficult to say that pre-service teacher identity development is formed by teacher education programme which is a combination of teacher educators, students, courses, curriculum, practice, etc.

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; Hoban, 2007), but whether this is recognized in teacher education programme design and activities is questionable.

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).

Beauchamp and Thomas (2009) reported 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).

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 problem statement of this study.

In the present study, 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. Considering the absence of a scale to measure pre-service teachers' teacher identity, the scale adapted in this study is the first measurement tool about pre-service teacher identity in the field in Turkey.

Adaptation Studies

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 by following the stages below:

- The national (Deniz, 2007; Savaşır&Şahin, 1997) and international (Geisinger, 1994; Hambleton&Patsula, 1998) pioneer studies about the adaptation, which were 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.

- 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.

- 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).

- Although it takes time, back-translation is the most preferred method in adaptation studies all over the world. 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.

- If the translators strictly stick to grammar rules, the meanings in the original form may become meaningless sentences and idioms. Thus, translators must be informed about some important words, idioms and meanings in both languages.

- The next stage of the adaptation process is 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).

- After completing all these stages, it is tested whether the construct validity and reliability analyses of data collection tool reveal acceptable statistics and coefficients by conducting factor analysis, by analysing reliability coefficients and item discrimination, and by testing criterion validity.

In the present study, all these adaptation analyses are explained in detail in findings and discussion parts.

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 analysis?
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?

Methodology

Research Design and Sampling

The current study is an adaptation of Early Teacher Identity Measure (ETIM) by Friesen and Besley (2013) into Turkish to investigate this scale's psychometric properties.

The target population of this study is students at education faculties at universities around Turkey. As accessible research population, 1559 female and male students at faculty of education at Gaziantep University were chosen. The research data was collected with the selection of the sample which consisted of

the students studying at 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 it allows each member in the population an equal chance of being chosen (Ekmekçi, 1997). Gender and department distribution of the participants are illustrated in Table 1 and Table 2:

Table 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 1, the number of female participants was 313 (69.8 %), and the number of male participants was 136 (30.2 %).

Table 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 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. 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, 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.

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. They tested the subscale structure with a principal components analysis of 113 teaching students in their first year at university. Examination of the scree plot and factor loadings indicated a single factor structure with factor loadings across items ranging from .34 to .81 in addition to high internal reliability of .87, and a varimax rotation method was also employed to distinguish the three subscales.

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".

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 of .95. Kaiser Meyer Olkin (KMO) value of the scale was .95. The findings indicate that the scale has a valid and a consistent structure. The analyses reveal 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. In the present study, this scale was used for criterion validity analysis.

Findings

This part presents the adaptation process and the results of the statistical analyses. The first part provides information about adaptation stages while the other parts include descriptive and inferential analyses by answering the research questions.

Adaptation of Early Teacher Identity Measure (ETIM) in Turkish

As the decision point for an adaptation study, 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.

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.

In translation stage, the techniques of the one-way translation, post-translation questioning, group translation, and back translation were used. For the first step of the translation process, the linguistic validity of the scale in the target language was examined, and 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. A translation form 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 presentation which included the original items with all offered translations from each translator. 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.

Following that 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 in the scope of back-translation method. 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.

After revising the translated forms 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?

Next, the scale was piloted with 20 students whose profile was 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 were comprehensive or not, and how these statements could 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.

To analyse the linguistic equivalence between the original form and the adapted form, 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. 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.

Reliability analyses and the analyses on construct validity are explained in detail in the inferential analyses part by answering the research questions.

Descriptive Analyses

In Table 4, 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.

Table 4. 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

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.

Table 5. 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

Inferential Analyses

In this part of the study, the findings are demonstrated on the basis of research questions. In each research question, the other parts of adaptation study (reliability analyses and the analyses on construct validity) are explained.

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?

Confirmatory factor analysis. 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 2). After completing all translation, linguistic equivalence, and some reliability analyses, 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*.

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).
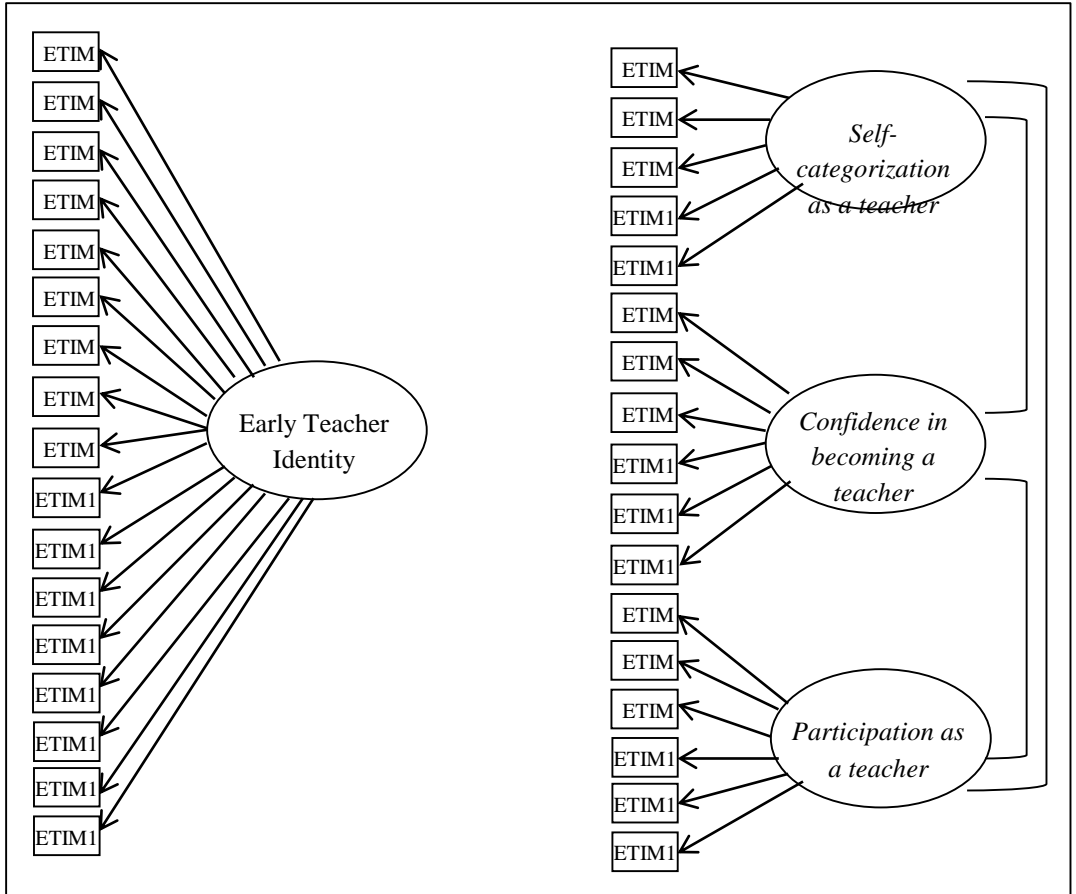
Figure 2. Two proposed models for investigation in CFA

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. 2Wheaton, Muthen, Alwin, Summers'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) essentially measures the "extent to which a model fits reasonably well in the population" (Brown, 2006). 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). According to Kline (2005), SRMR values less than .10 are generally considered favourable. 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 Hu and Bentler (1999) have suggested NNFI $\geq$ .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). 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 3), the current study proceeded with exploratory factor analysis to find a better fitting.
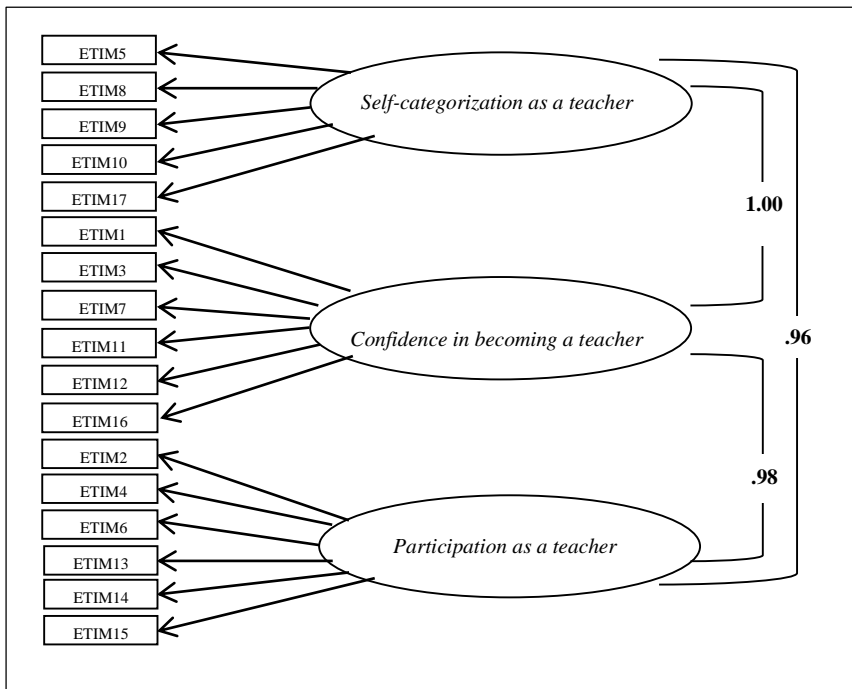

Figure 3. Three-factor Model 2: Correlations between the factors

Table 6. 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

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, CFI: comparative fit index

Exploratory factor analysis. In the current study, in order to bring a better explanation to the factorial structure of the scale, anEFA 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. 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 B).

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. 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.

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 7. 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 8), 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 8. Communalities

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

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 9 - 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 9. 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 (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, 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).
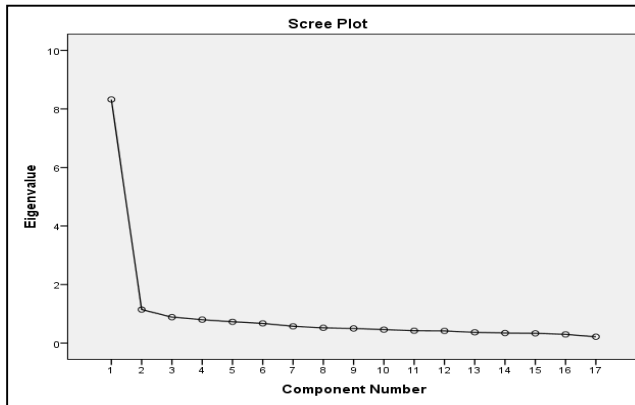
Figure 4. The scree plot regarding the final factor analysis

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. According to Tabachnick and Fidell (2001), .32 must be standardized as a rule. 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 10. 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 B). Additionally, in *Scale if item deleted* table (see Appendix B), 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.

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 11. 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**	
Correlation Between Forms				.91	
.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 12.*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 12, 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 13.

Table 13. 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 (see Appendix A for adapted Turkish version of the scale).

Results and Discussion

After meeting the requirements of all translation stages, linguistic equivalence and reliability studies, 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 a main research questions and five sub-questions.

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 6: *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, 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 12). 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 (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' (see Appendix A for adapted Turkish version of the scale). Adapted scale is based on a 5-point Likert scale ranged from 1 (Strongly Disagree) to 5 (Strongly Agree). Items measure the participants' perceptions of their early development of a teacher identity. In the adapted version of ETIM, individual items were organized around a single factor scale.

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, Verloop, and Vermunt (2000) 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). Therefore, in the current study, our aim was to adapt a scale in Turkish so that it can be used in future studies on pre-service teacher identity formation.

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).

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 scale adapted in this study can be used by 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.

It is hoped that the scale used in this 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.

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APPENDIX A. Early Teacher Identity Measure (TURKISH VERSION)

Sevgili Öğrenci,

Bu çalışmanın temel amacı eğitim fakültesindeki öğrencilerin meslek öncesi öğretmen kimliklerini belirleyebilmek için Türkçe'ye bir ölçek (Meslek Öncesi Öğretmen Kimliği Ölçeği, Friesen &Besley, 2013) uyarlamaktır. Size verdiğimiz ankette toplam iki bölüm bulunmaktadır. A bölümü bölümü 17 ve B 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.

ÖRNEK:

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

BÖLÜM A : 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.					

APPENDIX B. 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 C. 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