DEVELOPING AN ATTITUDE SCALE TOWARDS SPECIAL EDUCATION AS A TEACHING PROFESSION: A TEST STUDY

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Abstract: *The purpose of this study was to develop and demonstrate the reliability and validity of the The Attitude Scale Towards the Special Education Teaching Profession (ASTSETP). The participants were 384 students from Faculties of Education and teacher candidates from 1st, 2nd, 3rd, and 4th year classes. Using a 5-point Likert Type, a 42-item draft version of the ASTSETP was developed. As a result of subsequent analysis, the scale was reduced to 19 items across 3 factors. Final compliance index values were as follows: $\chi 2=36.17$, SD=15, p=.001, RMSEA= .07, GFI=.90, AGFI= .87, NFI= .95, NNFI= .97, CFI= .97 and IFI= .97. The Cronbach Alpha coefficient was .88. The scale was re-administered to 100 students four weeks after the first application, with a test-retest reliability coefficient of .89. Collectively these findings demonstrate that this scale is reliable.*

Keywords: *ASTSETP*, attitudes, special education, teaching profession

Introduction

The teaching profession is globally recognized as a critical profession within society (Avalos, 2011; Darling-Hammond, 2003). Indeed, only through education is it possible for societies to catch up with developing technologies and rapid change (Berrett, Murphy, & Sullivan, 2012; Tondeur, van Braak, Ertmer, & Ottenbreit-Leftwich, 2017). In this way, the teaching profession changes and develops the lives of the students, nurturing their ability to participate fully in society (Cohen, Manion, & Morrison, 2013). Today, the teaching profession is composed of differently trained and qualified teachers working with different student groups. Special education teachers, in many parts of the world, comprise a group of professional educators that differ from their counterparts in context of their work demands and educational training (Brunsting, Sreckovic, & Lane, 2014). Specifically, special education teachers working with individuals with distinct physical, mental, linguistic, social-emotional and learning characteristics and require special training to meet the needs of their students (Sindelar, Brownell, & Billingsley, 2010).

Special education teachers are licensed professionals who deliver instructional and direct services to students and their families. Special education teachers work with children and youth who experience a variety of disabilities and health impairments including learning disabilities, intellectual disabilities, hearing impairments, and visual impairments (Sanna, 2014). Special education teachers support students' academic, social, and behavioural development (Osborne & Russo, 2014). For instance, special education teachers may develop and review Individualized Education Programs (IEPs) with students' parents, general education teachers, and school administrators. They may work closely with parents to keep them updated about their children's progress and make recommendations to promote learning in the home. A large part of special education teachers' responsibilities involves communicating and coordinating with others involved in students' well-being, including parents, social workers, school psychologists, occupational and physical therapists, school administrators, and other teachers (Sanna, 2014). In some countried like Turkey, extreme changes have taken

place in the role of special education teachers, who are now required to work in expanded and complex organizational systems (e.g., hospitals, private schools, government schools, special education schools, special education classrooms, inclusion school environments: Brunsting, Sreckovic, & Lane, 2014). Special education teachers also work with teachers across various branches of institutions and school systems.

It is important for individuals with special needs to gain independence and engage in social roles. Education that identifies, determines, and takes into account individual capailibites can help meet such goals (Özkubat & Özdemir, 2014). Both humanistic and democratic viewpoints require individuals with special needs to be educated in ways that acknowledge and honor their talents, competences, and needs (Bateman & Bateman, 2014). In order to provide such education, special education teachers need to possess specific knowledge and skill sets. Kargın (1997) identified several teaching competencies, knowledge, and skills that are required of special education teachers including understanding of children's emotional, cognitive and social development, knowledge and skills of instructional methods and techniques, knowledge of varied assessment practices, and understanding of behaviour modification techniques. Special education teachers often work to mediate potential barriers in order to meet the needs of students with exceptionalities (Cohen et al., 2013). In this way, special education teachers are uniquely qualified to meet the needs of the students in their classes, facilitate and promote healthy and tolerant atmospheres in their classrooms, and facilitate social acceptance among all children including those with exceptionalities (Dukes, Darling, & Gallagher, 2016). Research indicates that teachers' perspectives about students are positively affected by their level of education, as well as their training in special education and supportive services (Özkubat, Sanır, Töret, & Babacan, 2016; Salend, 1998).

Educational services for individuals with exceptionalities can unfold in a variety of contexts ranging from the least restrictive (regular classroom) to more restrictive environments including integrated classrooms, resource rooms, special education classes (sub-special classes), special education schools, homes, and hospitals (Timuçin, 2009). The types of teachers differ in these educational environments. General education schools have special education teachers who accompany homeroom teachers, and separate education schools have teachers from other subject areas (e.g., art, music, physical education) who accompany special education teachers (Özel Eğitim Hizmetleri Yönetmeliği, 2006). In countries like Turkey, general education teachers and pre-school teachers can receive short-term training including special education courses or pre-service training (Altun-Könez, 2015; Özyürek, 2008). As special needs children may require different educational approaches than their peers, biased attitudes may emerge towards special education teachers amon educators in other teaching areas (Yaralı, 2015).

Attitude is described as a psychological variable that is a predictor of behaviour and is comprised of cognitive, emotional, and behavioural dimensions (Greenwald, 2014; Vogel & Wanke, 2016). Attitudes are one of the most important determinants of human behaviour. Individuals' attitudes affect their behaviours and emotional responses (DeVellis, 2016; Dimitrov, 2006; Hu & Bentler, 1995). For these reasons, measuring individuals' attitudes towards objects or situations is desirable (Woodcock, 2013). Attitude is a learned phenomenon that guides individuals' behaviours and may cause bias in their decision-making processes (Vogel & Wanke, 2016). Attitude involves a tendency

or bias towards an object or event, usually in opposition or in favor of it. Attitudes hold great importance in the teaching profession (Casey & Childs, 2017; Evetts, 2017; Kunter, Klusmann, Baumert, Richter, Voss, & Hachfeld, 2013). Teacher attitudes are related to their teaching behaviour and their students' achievement (Casey & Childs, 2017; Evetts, 2017; Greenwald, 2014; Kunter et al., 2013).

Individuals' attitudes towards the special education teaching profession reflect the degree to which they favour, or support, special education and those who teach in special education (Yaralı, 2015). Special education teachers, however, are not only individuals involved in the provision of support services and integrated programs provided to students with exceptionalities (Aslan, 2013). Other teachers, administrators, and staff affect the quality of education provided to children with exceptionalties as do families and other caregivers (Çitil, 2012). In this way, attitudes about and among these stakeholders affect the quality of education. Measuring individuals' attitudes towards special education as a teaching profession may allow other teachers and employees to challenge and change their attitudes towards special education. In the same way, it may be possible to measure and modify the attitudes of the teacher candidates who choose this professional pathway as a career.

Progress in many disciplines has been accelerated by the development of discipline-specific measurement methods (DeVellis, 2016). Measuring techniques and tools can facilitate the application and implementation of scientific data into practice (Erkuş, 2003). However, the structure of many human psychological characteristics, including attitudes, only allows for indirect measurement. Psychological elements are not easily identifiable. In order to make psychological elements identifiable, researchers must find appropriate prompts that will provoke individuals to respond (Kağıtçıbaşı, 2010). In this way, psychological characteristics can only be measured indirectly as a function of individuals' response patterns. In practice, various scales have been developed to convert qualitative responses about psychological characteristics into numerical information (Erkuş, 2012).

Several researchers have developed scales to measure attitudes towards the teaching profession and inclusion in schools (Ahluwalia, 1978; Boyle, Topping, & Jindal-Snape, 2013; Çetin, 2006; Chan & Elliott, 2004; Üstüner, 2006). Database scanning using the keywords "special education teaching profession", "attitudes towards teaching", "special education attitude scale" within the "Web of Science", "ScienceDirect", "Academic Search Complete (EBSCO)", and "Google Scholar" indexes show that there are no scales to measure attitudes about special education as a teaching profession.

Teaching in special education is unique and often involves different and unique ways of working as compared to other teaching venues (Brunsting, Screckovic, & Lane, 2014). Nevertheless, there is no attitudinal scale that has been developed for teaching within the special education field. A scale for the special education teaching profession would be important and useful for the researchers working within special education. The aim of this study is to develop a scale that measures teacher candidates' attitudes towards teaching in special education.

Method

In this section of the paper, information is provided with respect to participants, scale development, and data analysis procedures.

Participants

The participants were 384 teacher

candidates in either their 1st, 2nd, 3rd or 4th year of education studies. Specifically, participants were from one of two Faculties of Education in Ankara (Ankara University, Gazi University). Table 1 lists descriptive stastics for the participants as related to their areas of teaching focus and gender. One of the researchers reviewed the purpose and requirements of the study with the participants, emphasizing that their participation was voluntary. The *Attitude Scale Towards the Special Education Teaching Profession* (ASTSETP) was distributed to the students before the beginning of their courses and was completed during supervised lecture times. Completion typically required 20 minutes.

Table 1
Participant Descriptive Information

Department	Students		Gender			
			Male		Female	
	N	**%**	**N**	**%**	**N**	**%**
Classroom teacher candidates	103	26.6	57	54.9	46	45.1
Art teacher candidates	63	16.2	20	31.7	43	68.2
Pre-school teacher candidates	53	13,8	40	18.8	43	81.1
Math teacher candidates	40	10.4	30	62.5	15	37.5
English teacher candidates	33	8.6	25	30.3	23	69.7
Physical education teacher candidates	31	8.1	14	45.1	17	54.9
History teacher candidates	24	6.3	15	62.5	9	37.5
Science teacher candidates	20	5.2	12	60	8	40
Technical education teacher candidates	18	4.7	16	88.8	2	11.1
Total	384	100	178	46.5	205	53.5

Scale Development

The study was conducted in education departments at two different universities. Scale development consisted of two phases. In the first phase, draft items were developed. Two hundred students from Gazi University participated in the draft scale analyses phase of this study. The second phase of the study was conducted in Ankara University, with 184 students participating in the test and retest procedures.

In order to develop initial test items, nine special education teachers with more than five years of teaching experience were selected from local special education schools. These teachers were asked to write essays about "the meaning of the special education teaching profession." Qualitative analyses were completed to analyse these educators' essays. Each researcher independently reviewed the participants' responses item-by-item and identified six relevant themes including spirituality, helpfulness, professionalism, care, materialism, and public expectations. Themes were reviwed over two working group meetings, with any differences resolved through a vote. Six themes were identified from the teacher essays and used

to develop 14 questions that were added to the draft survey.
A literature review was also conducted before the final draft of the *ASTSETP* was prepared. In this review, the theoretical structure of attitudes (cognitive, emotional, behavioral, concentration of attitude) were examined (Albarracin, Johnson, & Zanna, 2014; Greenwald, 2014; Robinson, Shaver, & Wrightsman, 2013; Vogel & Wanke, 2016). These characteristics were taken into consideration and incorporated into the survey draft.

After these analyses, a draft survey consisting of 55 items was developed. Following additional consultations with academics and linguists specializing in the field of measurement and evaluation, 13 of these items were excluded due to conceptual or phrasing challenges. The resulting survey was comprised of 42-items, consisting of 18 negative and 24 positive expressions. Positive and negative expressions were used in order to reduce acquiescent bias and extreme response bias (DeVellis, 2016). By including a mix of both positive and negative items, respondents presumably were required to provide a considered response to the test itme which should reduce response biases. The draft survey used a 5-point Likert scale where 5=Completely Agree, 4=Agree, 3=Undecided, 2=Disagree and 1=Never Agree. Scores on negative items were reversed before the factor analysis.

Data Analysis

Various analyses were conducted to establish the reliability and validity of the *Attitude Scale Toward the Special* component analysis was used to assess structural validity and to determine and identify factors. Kaiser-Meyer-Olkin (KMO) coefficient and Barlett sphericity test values were found to determine the suitability of the data analysis of key components. KMO value in the study was calculated as 0.89. The results of the Barlett

Education Teaching Profession (*ASTSETP*). Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were conducted to establish the structural validity of the scale. SPSS 21.0 was used for EFA in order to explore the relationships between scale items and factors. At this stage, the Kaiser Meyer Olkin test (KMO) and Barlett sphericity test methods were used to determine the suitability of the data for the analysis of key components. The varimax technique was used to obtain the factors. The Lisle 8.8 package program was used to complete CFA and confirm the suitability of the model that was built in the EFA. To assess this consistency the values of chi-square ($\chi 2$), degree of freedom (DF), adjusted goodness of fit index (AGFI), goodness of fit index (GFI), 360 normed fit index (NFI), non-normed fit index (NNFI), incremental fit index (IFI), comparative fit index (CFI), and root-mean-square error of approximation (RMSEA) were calculated (Tabachnick, & Fidell, 2013). As a result of these analyses, a final scale consisting of 19 items was obtained. In order to determine the internal consistency of the *ASTSETP*, all of the attitude scale and associated factors Cronbach Alpha values were calculated.

Results

In this section, findings on validity and reliability of the *ASTSETP* are reviewed.

Validity

Both scope and structural validity of the developed attitude scale were examined. Basic

sphericity test showed that the result of the chi-square test statistic was statistically significant ($\chi 2 = 2763.62$, df = 171, $p < 0.001$). In the first EFA, the items of the scale were collected under 8 factors. The variance explained by these 8 factors on the scale is 61.59%. Some of the factors were charged by a very small number of items,

some items were charged by more than one factor, and some items were charged with values of less than .30. These items were removed from the scale and the EFA procedure was repeated. As a result of this subsequent analyses, the remaining 19 items were intensified in 3 factors. The eigenvalues of these factors are shown in Figure 1.

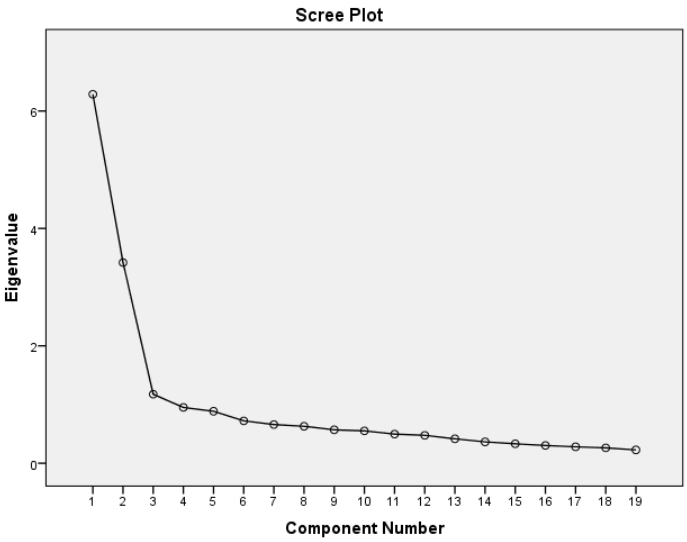


Figure 1. Eigenvalues by item.

In these analyses varimax was used as a vertical rotation technique and the lower cut-off point of .35 adopted for the factor loads. Items with factor loadings below this value were not processed. Table 2 provides the EFA values for the remaining 19 items.

Table 2
Factor Loadings for ASTSETP Items

Item	F1	F2	F3
	EFA	EFA	EFA
14. I do not want to be a special education teacher as profession.	.817		
2. The special education teacher profession is not suitable for me.	.805		
12. I believe that special education teacher profession is appropriate for me.	.798		
1. I do not consider to perform special education teacher.	.754		
15. Despite all the difficulties, I prefer to be a special education teacher.	.725		
3. It's not tempting to deal with children with disabilities whole day.	.633		
9. Even the idea of being a special education teacher makes me nervous.	.625		
5. I would do very good things if I were a special education teacher.	.605		
13. I believe that I can practice being special education teacher professionally.	.599		
18. Special education teachers are important to understand the problems of the handicapped.		.843	

19. Special education teachers are guides to families with children with disabilities.	.774	
17. The number of special education teachers need to increase.	.773	
16. The special education teacher must be known.	.733	
10. I like special education teachers.		.705
11. I cooperate with special education teachers.		.672
8. Special education teacher is a profession with a high spiritual satisfaction.		.668
6. Special education teaching proficiency, gains a lot to a teacher.		.653
7. Special education teachers can teach a lot to the students with disabilities.		.617
4. I do not feel uncomfortable with special education teachers.		.520

Factor load values of the EFA are listed from high to low for each of the factors in Table 3. Items in the 19-item scale are concentrated across 3 factors. The first factor consists of 9 items, the second consists of 6 items, and the third consists of 4 items. According to the EFA outcomes, the load values of the first factor varied between .60 and .82, the load values of the second factor varied between .64 and .81, and the load values of the third factor varied between .52 and .71.

Table 3
Exploratory Factor Analysis values for factors

Factors	Eigenvalues	Percentage of variance
F1	33.079	25.161
F2	17.988	16.487
F3	6.187	15.605

Key for Table 3: F1 = First factor load values; F2 = Second factor load values; and F3 = third factor load values

The first factor explained 25.16% of the variance, the second factor explained 16.49% of the total variance, and the third factor explained 15.61% of the total variance. It is seen that factors consisting of all components explaind 57.25% of the total variance. The eigenvalue which provides the importance and weight of the factors was found to be 33.08 for the first factor, 17.99 for the second factor, and 6.19 for the third factor. The results obtained in EFA were tested by CFA. Figure 2 lists factor distributions and load values for the CFA.

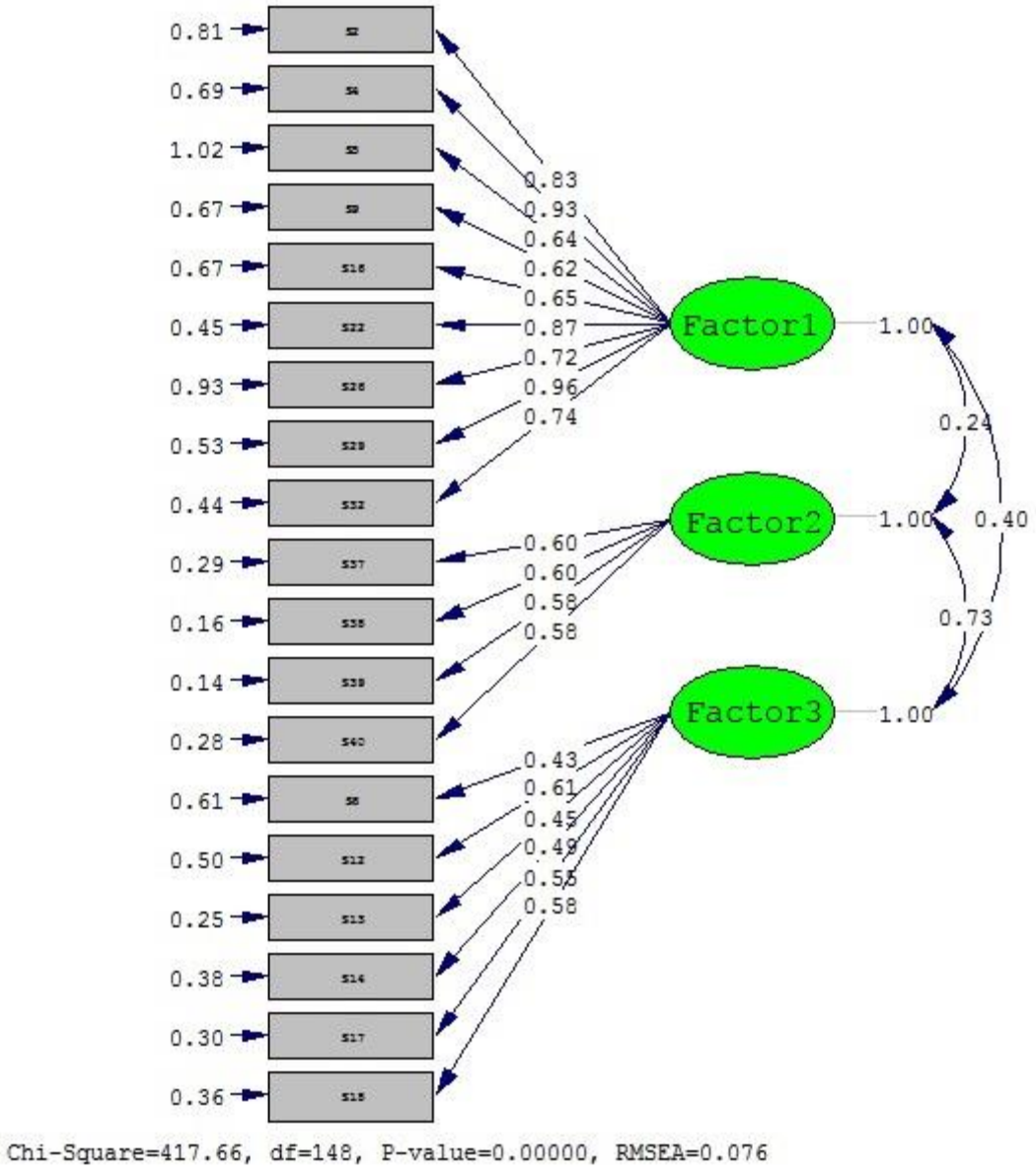
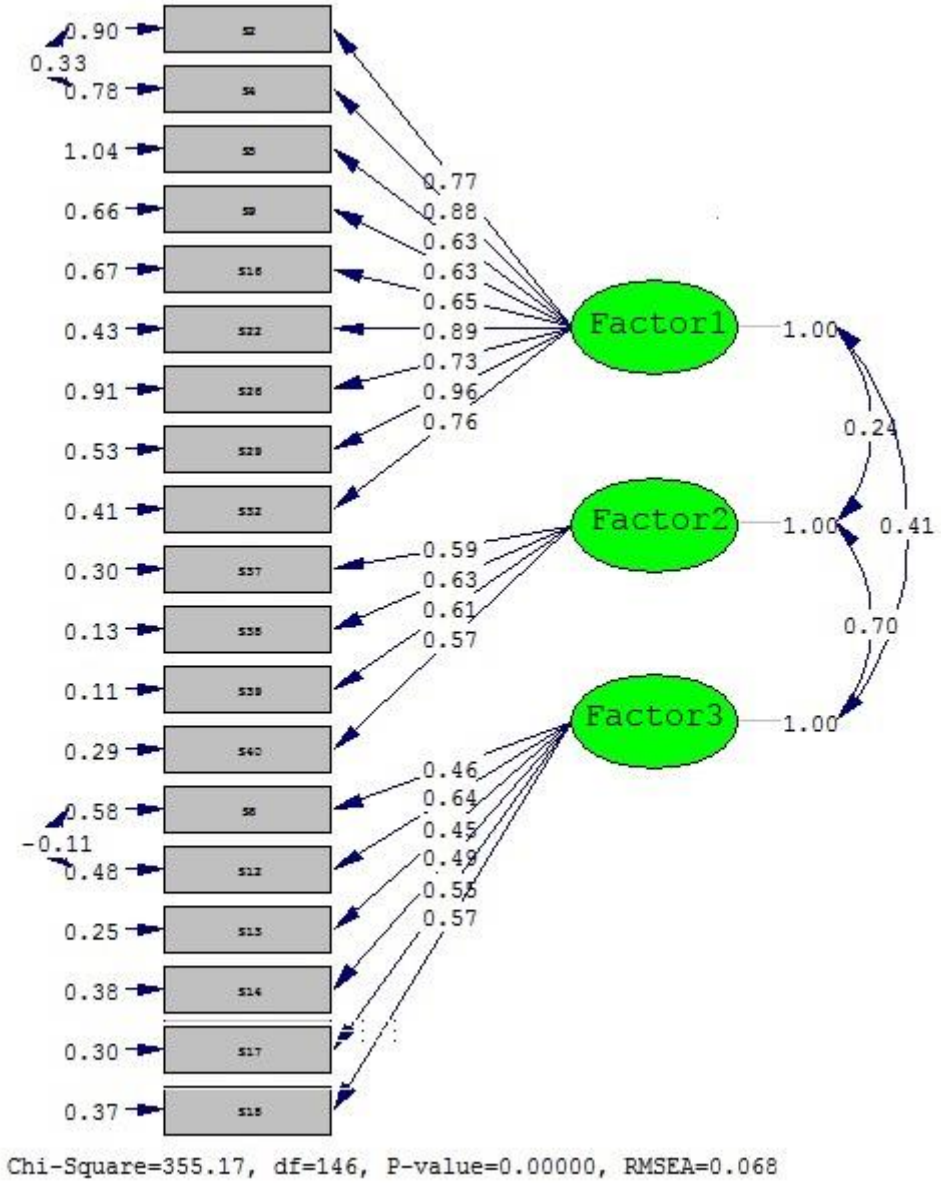


Figure 2. CFA values.

The error variances of the items constituting the model obtained by CFA and the factor load values for associated item factors are also outlined in Figure 2. Correlation values between the factors and related items varied between .43 and .96. The relationship between the first factor and the second factor was .24 and the relationship between the first factor and the third factor was .40. The relationship between the second factor and the third factor was .73. These values show that the items in the scale are appropriate to represent the proposed structure. In addition, the chi-square, degree of freedom and compliance index values of this model were calculated as follows: $\chi 2 = 417.66$, SD = 148, $p = .001$, RMSEA = .076, GFI = .87, AGFI =.84, NFI = .93, NNFI = .95, CFI = .96 and IFI= .96. When examining index values (Figure 2) for the model, it can be concluded that the proposed model is in acceptable agreement with the observed data.



Modifications were made to some of the items in order to take into account the level of relationship between item errors and the proposed model. The relationship between items 2 to 4, and 6 to 12 were released. After these corrections, the model in Figure 3 was obtained.

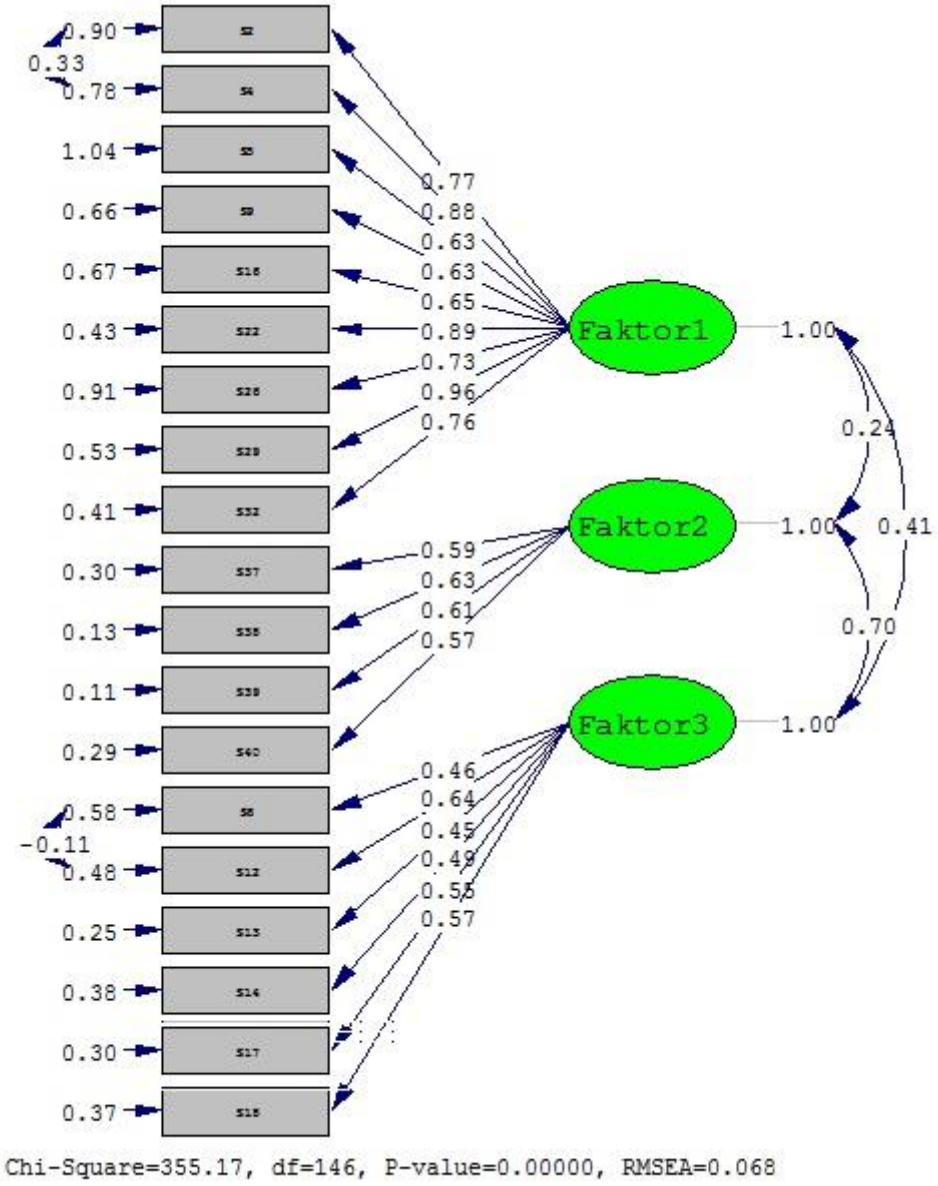


Figure 3. CFA values after item modification.

Review of Figure 3 indicates that model obtained after correction was more compatible with the data. The compliance index values obtained were as follows: $\chi 2$ = 355.17, SD = 146, p =.001, RMSEA = .07, GFI = .90, AGFI = .87, NFI = .95, NNFI = .97, CFI = .97 and IFI= .97. When the relationship between the factors is considered, the first factor demonstred a .24 relationship with the second factor, and the relationship between the first factor and the third factor was .41. The relationship between the second factor and the third factor was .71.

Reliability

Cronbach Alpha internal consistency coefficients and test-retest reliability coefficients were calculated for the reliability of the *ASTSETP*. The Cronbach Alpha coefficient for all of these scales was .88, for the first factor of scale was .88, for the second factor was .86, and for the third factor was .77. One hundred participants completed the scale four weeks after the administration, resulting in a test-retest reliability coefficient of .89. Thus, response patterns were determined to be consistent across time. This demonstrates that the scale is reliable.

Discussion

Considering the importance of attitudinal traits in education, it is important to develop scales for measuring these traits accurately. Following a review of the literature, the *ASTSETP* was developed to explore teacher candidate attitudes related to teaching in special education.

The resulting Cronbach-Alpha coefficients and test-retest reliability coefficients demonstrated that the *ASTSETP* consisting of 19 items is reliable. The validity of structure and the validity of the scope of the survey were also examined. For the structural validity, EFA was applied first, and then the CFA was applied for the validation of findings. As a result of the EFA, it was found that 57% of the variance was explained by the three-factor scale. Based on EFA and CFA analyses, it can be concluded that this three-factor scale is valid. Findings of validity and reliability of the scale indicate that this scale can be used to determine the teacher candidates' attitudes towards the special education profession.

Presumably, the *ASTSETP* could also be used as a measurement tool for the perceptions of students who are in the process of choosing a career, the perceptions of students in university, and the perceptions of other professionals and stakeholders who work with special education teachers. However, additional studies determining the relability and validity of the *ASTSETP* for use with such varied participant groups will be required as this scale is based on the responses of teacher candidates enrolled in either their 1st, 2nd, 3rd, or 4th year of undergraduate studies.

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