# Developing an Attitude Scale for the Profession of Physical Education Teaching (ASPPET)*

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#### Abstract

In this study, the development of a Likert-type attitude scale for the profession of physical education teaching (ASPPET) was aimed. The group of the study was consisted of totally 556 pre-service physical education teachers. In order to determine the structural validity of ASPPET, an exploratory and confirmative factor analyses were performed. A two-factor structure was determined as a result of the factor analysis. It was seen that while the first factor of the scale was consisted of positive and 13 items, the second factor was consisted of negative and 10 items. While the first factor explained 30,77% of the total variance and the second factor explained 23,30% of the total variance; it was seen that two lower factors explained 54,08% of the total variance together. The high adaptive values obtained as a result of the confirmative factor analysis showed that the two-factor structure of the scale was confirmed. Internal consistency coefficients of Cronbach alpha were calculated; it was determined as 90 for the first lower factor; 86 for the second lower factor and 88 for the whole scale. It was concluded that the scale, which was obtained from these findings, was a valid and reliable scale in measuring the attitude directed at the profession of physical education teaching.

#### Key Words

*Attitude, Profession of Physical Education Teaching, Scale, Validity and Reliability.*

Teachers are important components of educational system (Kavcar, 2005). While Küçükahmet (2001, p.1) designates that "the magic wand in teaching is teacher's himself"; Yılmaz, Köseoğlu, Gerçek and Soran (2004) emphasize that teachers are indispensable elements of educational system as the ones who change and improve behaviors of students.

Furthermore, they indicate that the success of an educational system cannot be considered separately from the teacher who realizes and carries out the system.

The personal characteristics of a teacher, their skills in monitoring the teaching and learning processes, relations with students and environment are all factors which affect the studies and achievements of candidate teachers (Aydın, 1993). Teaching is a profession requiring awareness of new developments, ongoing professional training, patience, and dedicated studying. Being successful as a teacher is possible only through loving it (Çiçek-Sağlam, 2008). Another factor affecting the success of teachers is their attitude towards the profession (Güneyli & Aslan, 2009). Attitudes are "one of the personality characteristic of teachers affecting their students; in particular, attitudes towards the profession, student and school studies dramatically affect the learning process and personal character of the student" (Küçükahmet, 2003, p. 68).

Attitudes are an important concept affecting human behaviors. Different definitions of attitude are present in the literature. According to Tavşancıl (2002), attitude is an emotional and intellectual state of readiness having directive and influential power on humans' behaviors towards all relevant states and objects occurring as a result of life and experiences. According to Demirel (2003, p. 93), it is "a learned inclination prompting an individual to certain behaviors towards certain persons, objects and states." In another definition, attitude is defined as "an inclination of negative or positive learned reaction towards certain objects, states, institutions, concepts and persons" (Tezbaşaran, 1997, p. 1).

In general, attitudes affect the senses, thoughts, and behaviors of individuals. According to this, irrespective of their teaching specialism, the attitudes of teachers towards their profession are of great importance in their affection for the profession of teaching, their success in the profession and in fulfilling the requirements of the profession (Durmuşoğlu, Yanık, & Akkoyunlu, 2009). The attitudes and perceptions of a profession affect the perception of professional competence and the achievements in that profession (Terzi & Tezci, 2007).

Determination of the attitudes towards teaching profession has been used as topic in many researches so far. Among those researches, the researches by Baykara-Pehlivan (2008; 2010), Çetinkaya (2009), Güneyli and Aslan (2009), Çapri and Çelikkaleli (2008), Sayın (2005), Duatepe and Akkuş-Çıkla (2004) indicated that the attitudes of teacher candidates towards teaching profession are generally positive and high. Additionally, the attitudes of woman teacher candidates are relatively higher than of man teacher candidates. However, in some researches, it is among the findings that although the attitudes of teacher candidates toward teaching profession are high; there is no significant difference in terms of sex (Çapa & Çil, 2000; Semerci & Semerci, 2004). In a study, performed by Pehlivan (2010), about the attitudes of physical education teacher candidates toward teaching profession, it is determined that the attitudes of physical education teacher candidates toward teaching profession is in midlevel and the attitudes of woman physical education teacher candidates are higher than of the men.

Everton, Turner, Hargraves and Pella (2007) reported that the attitude toward teaching profession is positive especially among young people and teaching profession is considered as an efficient career by 50% of the population. On the other hand, Su (1997) performed a research to determine how teacher candidates from different ethnic groups consider teaching profession and being a teacher as a career. In this study, it was reported that vast majority of teacher candidates were proud that they will be teacher; however, only one in three consider teaching profession as a career to be continued through the rest of their lives. In the study that Durmuşoğlu and colleagues (2009) examine the attitudes of Turk and Azerbaijani teacher candidates toward teaching profession, Azerbaijani teacher candidates were observed to have more positive attitudes. In another study performed on the teachers in Nigeria by Osunde and Izevbigie (2006), it was mentioned that being not supported economically, being not paid the salaries and payments on time cause them make light of their professions and lose their senses of belonging to the profession. As a result of this, it can be deduced that the attitudes of teachers toward teaching profession decrease.

The studies about determining the attitudes of teacher candidates toward teaching profession are conducted by generally considering also the facts thought to affect the attitudes of teacher candidates toward teaching profession, such as sex, class level, preference order, education level of parents, income state of family. On the other hand, among the studies about determining the attitude toward teaching profession, there are also some studies as to scale development (Bulut & Doğar, 2006; Çetin, 2006; Erkuş, Sanlı, Bağlı, & Güven, 2000; Temizkan, 2008; Tufan & Güdek, 2008).

The eagerness of a student to became a teacher, their tendency to this profession and their attitudes towards the teaching environment and social values should be taken into consideration in teacher training programs for qualified pre-service teachers (Oral, 2004). The attitudes of physical education teachers towards their profession are of vital importance in achieving the goals of physical education lessons, which have an important role in educational programs and general education; and enabling the desired behavioral changes in the individual. Thus, positive attitude is determined as a factor that directly and proportionally affects the success of teachers (Demir, 2004). Therefore, determining the personal characteristics of candidate teachers is of great importance for this profession. Valid and reliable scales are needed to determine the attitudes of candidate teachers towards the profession of teaching.

## Purpose

The aim of this study is to develop a Likert type scale to measure the attitudes of candidate physical education teachers towards the profession of teaching physical education.

## Method

This quantitative research is a descriptive study, examining the present condition. A cross-sectional approach was used to analyze data collected from participants of differing ages. This research used a relational screening model to develop the scale to measure attitudes towards physical education teaching.

## Research Group

The participants consisted of 556 candidate teachers, 243 (43.7%) of whom were female and 313 (56.3%) of whom were male. All participants were enrolled in various years (1- 4 class) of physical education and sports teaching programs at 5 different universities during the 2009- 2010 school year. Participants were chosen via purposive sampling. Samples were chosen by considering the study's main purpose, "enrollment in physical education and sports teaching programs", via maximum variability method in the types of purposive sampling. This sampling method is reported to give important clues about the values of universe (Fraenkel & Wallen, 1993). The principle of this sampling is, with respect to the aims of the study, to take purposively one or several sub-sections of the universe instead of its representative sample. In other words, purposive sampling is an important method that includes making the most proper side of the universe into observation subject (Sencer, 1989). In purposive sampling, instead of using a formula, the researcher designates a sample size according to his knowledge, previous theoretical knowledge about the universe and the special purpose of the research (Fraenkel and Wallen, 1993). On the other hand, in Likert type scale development, sampling can be said to be sufficient when the need that the research group must be five-fold of the item number is considered (Tavşancıl, 2002).

## Information about the Scale

The scale developed in this study determines the attitudes of candidate physical education teachers towards the profession of physical education teaching.

In the process of developing the scale, the literature regarding the teaching profession (Aşkar & Erden, 1987; Çetin, 2006; Erkuş, Sanlı, Başlı, & Güven, 2000; Özbek, Kahyaoğlu, & Özgen, 2007; Temizkan, 2008; Tufan & Güdek, 2008) was reviewed and items about attitudes within the teaching profession were listed. Additionally, open-ended questions such as "Why did you choose the profession of physical education? Which reasons oriented you to the profession of physical education?" were directed to 20 physical education teachers to whom most of them undertaking graduate studies at Aksaray University Department of Physical Education and Sport, and they were asked to answer these questions using compositions. The features indicated within the literature and the results of the compositions were converted to a series of 32 attitude sentences by the researcher. Turkish language lecturers were consulted regarding the appropriateness of these sentences in terms of language and expression. The sentences were also examined by three experts in the field of assessment and evaluation and three experts from the field of physical education teaching. In response to expert comments, the number of sentences in the scale was reduced to 25 due to similarities between some sentences, some not including any attitude for the profession of physical education teaching, and insufficiency in terms of language and expression. The final scale, consisting of 25 items with a 5-item Likert style scale, was applied to the candidate teacher group. As a result of the analysis 2 items removed from the scale and of 25 item scale reduced to the 23 item.

High attitude scores were given to response options stressing the positivity of profession of physical education teaching. Therefore, responses such as "I certainly agree, I agree, I partially agree, I don't agree, I certainly do not agree" were scored as 5-4-3-2-1 in positive questionnaire items (items number 19, 24, 10, 17, 16, 7, 5, 25, 1, 23, 4, 21, 8); the categories were scored as 1-2-3-4-5 in responses to negative items (items number 14, 2, 12, 18, 6, 22, 11, 13, 3, 15). Thus, a total scale score was obtained from the sum of all responses, with a maximum score of 115 and a minimum score of 23. The coefficient range was determined with the aim of making evaluation related the points that received from the scale. According to this; 23-41 score range " very low attitude", 42-60 score range " low attitude", 61-79 score range "medium attitude", 80-98 score range " high attitude" and 99-115 score range " very high attitude" were numbered. The scale is also appropriate for making a calculation over the averages. Determined coefficient range

of making evaluation over the averages was numbered as 1-1.80 score range "very low attitude", 1.81-2.60 score range "low attitude", 2.61-3.40 score range "medium attitude" , 3.41-4.20 score range "high attitude" and 4.21-5.00 score range "very high attitude".

### Data Analysis

Frequency and common-size percentage analysis were used to analyze the data and the demographic characteristics of participants. Explanatory and confirmatory factor analyses were used to analyze construct validity. Internal consistency reliability (Cronbach's alpha) and material analyses were used to determine the reliability of the study. For statistical analysis, SPSS 15.0 and LİSREL 8.71 were used. A value of 0.05 was considered significant in all statistical analyses.

### Results

Factor analysis was applied to the data obtained from testing implementation made to determine the validity and reliability of the assessment instrument the researcher aimed to develop.

### Examination of Factor Analysis Structure

Explanatory and confirmatory factor analyses were made to test the construct validity of the scale.

*Explanatory factor analysis:* The results of Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity test were used to determine the appropriateness of the data for factor analysis. As a result of analyses, the KMO value was 0.930. Kaiser stated that this value was accepted as perfect when it approached 1, and unacceptable when it was below 0.50 (Büyüköztürk, 2008; Tavşancıl, 2002). From this point of view, the KMO value can be defined as "perfect". The chi-square value of Bartlett's test was found to be significant [$\chi^2$=7872.124, sd=253, $p$<.01]. Based on these results, the data was found to be appropriate for factor analysis (Büyüköztürk, 2008).

One of the most important steps of factor analysis is to decide factor number. There are different methods to decide factor number; Kaiser's criterion and scree plot methods are frequently used ones, though. According to Kaiser's criterion, factors of which eigen value equals to 1.00 or greater remain the analysis (Büyüköztürk, 2008). Scree plot is a kind of graph that shows real and error factors obtained as a result of the analysis. Because

of the fact that there are strong and weak sides of the rule of deciding both factor numbers, multiple criterion usage is advised in factor analysis studies (Kahn, 2006).

According to varimax rotation principal component analysis, two factors, were determined, which explain 53.85% of the variance in the scores and whose Eigenvalues are above 1. Also, Eigenvalue graphic results and Keiser scale applied to the data group supported the finding that items in the scale measured a 2-dimensional structure. Additionally, the literature states that factors loads ranging between 0.30 and 0.40 can be taken as an undercut point in constructing a factor pattern (Neale & Liebert, 1980). In this study, the lower limit of factor load values to keep the items in factor was determined as 0.30. As a result of factor analyses, 2 items (9th and 20th) were observed to have factor loads below 0.30. Therefore, as the 9th and 20th articles had no dimension and factor loads below 0.30, they were removed from the scale.

Factor analysis was repeated using the remaining 23 items. As a result of principal components analysis, the scale was observed to have a 2-factor structure, having an Eigen value above 1; and to explain 54.08% of the total variance. This value shows that the scale successfully measured the targeted features. Of the 23 items in the final scale, 13 were grouped in the first factor and 10 items were grouped in the second factor. While the factor load values of the items in the first factor ranged between .33 and .84, those in the second factor ranged between .51 and .77.

*Confirmatory factor analysis:* Confirmatory factor analysis (DFA) was used to determine the level of appropriateness of the observed data to 2-dimensional model in addition to explanatory factor analysis to examine the construct validity of the scale. Confirmatory factor analysis aims to evaluate the level of consistency of a factorial model consisting of observable factors (potential variables) compared to real data (Şimşek, 2007).

There are lots of fit index found that are used in the Structural Equation Modeling (SEM) field. Among them, most commonly used one is Chi-square ($X^2$) test. Another way used for describing consistency of the model to the data is calculation of the ratio of Chi-square to degree of freedom. For the ratio to be 5 and below is designated as an acceptable value (Kline, 2005). Mostly used fit indexes are Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Root Mean Square Residual (RMR), Root Mean Square Error of Approximation (RMSEA)

and Comparative Fit Index (CFI). In this study, above mentioned fit indexes were used as criterion. For the value of GFI, AGFI, NFI, NNFI and CFI to be .90 and above is assumed as good fit. For the values of RMR or RMSEA to be .05 and below is assumed as best fit; to be .08 and below is assumed as acceptable fit (Schermelleh-Engel, Moosbrugger, & Müler, 2003; Sümer, 2000; Şimşek, 2007).

The $X^2$/sd proportion calculated with confirmatory factor analysis was 3.76 ($p$ = .000), which showed the good consistency of the suggested factor model to the data (Sümer, 2000; Şimşek, 2007). The results of confirmatory factor analysis (GFI value .94, IFI value .92, CFI value.92, AGFI value .92, NNFI value.91, RMR value .043 and RMSEA value .053) showed that the 2-factor structure of the scale was acceptable and provided valid results (Sümer, 2000; Şimşek, 2007).

### Reliability

Internal consistency coefficient was calculated to determine the reliability study. Cronbach's alpha reliability coefficients were found to be 0.90 for the first sub-scale, 0.86 for the second sub-scale and 88 for the overall scale. Given that coefficients of 0.65 and above are regarded as indicating sufficient reliability (Cronbach, 1990), it can be seen that the reliability levels of the scale and the items it includes are sufficient. Also, according to Özdamar (1999, p. 522), when the criteria used to evaluate the alpha coefficient are examined, if $0.00 \leq \alpha \leq 0.40$, the scale is not reliable, if $0.40 \leq \alpha \leq 0.60$, the scale has low reliability, if $0.60 \leq \alpha \leq 0.80$, it is highly reliable, and if $0.80 \leq \alpha \leq 1.00$, the scale is very highly reliable. From this information, the scale can be evaluated as very highly reliable. Also, as a result of the material analysis, the corrected material total score correlation was observed to range between 0.31 and 0.82. When the alpha values were observed after the material was removed, these values were observed to range between 0.87 and 0.91.

Validity, reliability and material analyses showed that the scale consisting of 23 items and 2 factors could be used to measure attitudes towards physical education teaching. In the scale, factors were named by examining the definitions of items where similar materials were grouped and previous studies (Çetin, 2006; Temizkan, 2008; Tufan & Güdek, 2006; Üstüner, 2006) within the literature. Accordingly, the 13 items gathered under the first factor were observed to consist of items regarding the affection for physical education

teaching. Therefore, this dimension was termed the "Dimension of Affection for Profession". This dimension included statements such as "Everything regarding physical education teaching attracts me", "I believe that the most appropriate profession for me is physical education teaching", "Physical education teaching is a profession that I enjoy performing". The 11 items in the second factor were observed to consist of items related to reluctance and concerns about the profession of physical education teaching, and therefore this dimension was termed the "Dimension of Concern about the Profession". The items within this dimension included statements such as "I would choose another profession if it was possible", "I've lost my affection for physical education teaching, as it requires performing sports all the time", "I think physical education teaching has lost its social value", and "I think especially the first years of teaching will be hard in this profession".

Attitude is a mental, emotional and behavioral response predisposition that one organizes on the basis of oneself or any object being around, experience against social subject or event, motivation and own knowledge (İnceoğlu, 2004). Attitude is a three dimensional, cognitive, affective and behavioral, psychological structure (Tavşancıl, 2002). However, the items in ASPPET scale are found in affective dimension. Some of those items are positive and some are negative. Thus, it can be stated that the scale can be used in further studies to evaluate only affective dimensional attitude of the attitude toward the profession of physical education teaching.

### Discussion

In the study, a Likert type attitude scale toward the profession of physical education teaching was developed, and findings about validity and reliability of the scale were stated. For the attitudes of students toward physical education lesson to be positive makes the activities in the lessons efficient, and it can help the lesson reach its special and general purposes (Silverman & Scrabis, 2004). Many researches examining the relation between success and attitude have shown that there is a positive relation between the attitude of students toward a lesson and the success of the students in this lesson (Peker & Mirasyedioğlu, 2003). Thus, it can be said that determining the attitude toward physical education lesson is related to the success in physical education lesson.

The literature includes some scales developed to measure attitudes towards physical education teaching. For example, Güllü and Güçlü (2009) developed an attitude scale to detect the attitudes of elementary school students towards physical education lessons. The scale consists of 35 items, 11 of which are negative and 24 of which are positive. The scale is one-dimensional and the variance explained by the single factor was found to be 36.19%. However, in this study, the scale with its 23 items accounted for 54.08% of the variance. Similarly, Demirhan and Altay (2001) developed a scale to measure the attitudes of students towards physical education lessons. The scale had one dimension and explained 54.54% of the variance. In this context, the scale developed in the present study can be said to give better results in measuring attitudes towards physical education teaching. The significant difference in the explained variance may be due to the different research groups in the various studies. While the present study included university students, Güllü and Güçlü (2009) studied a group of elementary school students. The variance values were similar in the 23-item scale in the present study and the 32-item scale developed by Demirhan and Altay (2001). It can be said that the results obtained from the present study have more validity considering the "economy" provision of scales. As in the study by Güllü and Güçlü'nün (2009), Demirhan and Altay (2001) used data acquired from elementary school students. Future studies may deal with both university and high school students. Also, in previous scales measuring attitudes towards physical education teaching, it is observed that factor structure was not examined using confirmatory factor analysis. In this context, the present scale can be said to give more valid results.

Within the literature, the reliability findings of the scales developed to measure attitudes towards physical education lessons are similar to those of the present study. For example, the internal consistency coefficient (Cronbach's Alpha) of the scale was 0.94 in the study by Güllü and Güçlü (2009). Internal consistency coefficient was 0.93 for the total scale developed by Demirhan and Altay (2001) to measure the attitudes of high school students towards physical education lessons. Also, material- test correlation of items was found to range between 0.49 and 0.62. In the present study, Cronbach's alpha value for the total scale was 0.88 and its material- test correlation was found to range between 0.31 and 0.82. When the alpha values were examined after removing material in this study, these values were observed to range between 0.87

and 0.91. The finding regarding the reliability of the scale can be defined as being comparable with those reported in the literature.

This scale only measures the affective dimension of attitudes towards physical education teaching, not the cognitive or behavioral dimensions. The scale can be used in studies of physical education teachers or candidate teachers. Using this scale, a total score can be obtained to determine attitudes towards physical education teaching and the attitude of an individual towards physical education teaching can also be measured from values acquired by dividing the total score obtained from the scale into the number of items. In this context, while a high score indicates positive affective attribution; low scores indicate negative affective attribution.

According to the findings of the study, the 23-item scale can be considered as reliable and valid. Testing internal consistency and factor structure of the scale on different samples may be suggested for future studies. Determination of attribution of candidate physical education teachers for the profession of physical education teaching will contribute to their training process. In this context, measurement tools that will be developed in future studies can be used to measure the attribution for the profession of physical education teaching.

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