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The Development of a Student Teacher Concerns Scale

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Abstract

Problem Statement: Practice teaching is an important element in teacher education programs and it plays an active role in student teacher's obtaining and improving their teaching skills. However, student teachers have some concerns, since they are observed and evaluated by their supervisors in terms of class management, methods and techniques, preparation, and communication with students. A unique concern scale might be developed to measure the nature and degree of the concerns that affect student teachers.

Purpose of the Study: The purpose of the study is to develop a unique scale that measures the types and degrees of student teachers' concerns over the course of practice teaching period.

Method: A student teachers' Concern Scale was developed based on the literature and on interviews with 98 student teachers (50 males, 48 females) from different departments of Education Faculty of Gazi University in 2011-2012 academic year. The form was revised in response to peer review, and student teachers of different departments from three universities (n=681) in Ankara (Gazi University n=348; Hacettepe University n=296; Ankara University n= 37) were given the revised draft of the 23-item form 423 of participants were females and 258 of them were males (Median=22). The construct validity of the scale was examined via exploratory and confirmatory factor analyses. The reliability of the measurement was tested using Cronbach's alpha and stratified alpha methods.

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Findings and Results: Principle component and exploratory factor analyses showed a two-factor solution of (1) class management (11 items; variance explained: 23.16%), (2) evaluation (8 items; variance explained: 17.29%) in the first sample. Confirmatory factor analysis revealed acceptable goodness of fit indices ($\chi^2_{151} = 724.02$; p=.00; Normed x^2= 4.79; CFI=.88; GFI= .94; AGFI= .92; RMSEA=.11 and 90% C.I. =.10 - .11for RMSEA), and item-total correlations were between .38 and .69. Reliability coefficients were .84 and .95 for class-management, .79 and .92 for evaluation, .84 for overall scale.

Recommendation: Student teacher Concern Scale can be utilized to eliminate some weaknesses in practice teaching experience, improvement in programs in teacher education institutions, to guide related researchers.

Keywords: concern in the teaching practicum, teaching practicum, student teacher concern scale

Countries successful in education give a special importance on teacher education (OECD, 2012; Eraslan, 2009; Simola, 2005; Türkoğlu, 2005). Internal and external conditions such as characteristics of student teachers, quality of teaching services, and learning outputs are considered in forming teacher education programs. Cognitive and affective onset behaviors constitute student teacher characteristics. Cognitive onset behaviors include basic learning in related field, while the affective onset behaviors consisted of teachers' overall and academic self-concept of ability, beliefs of success, interests, and attitudes. Student teachers' concerns primarily affect characteristics of student teachers, and they also have impact on the other internal and external conditions of education programs like the quality of teaching service and learning outputs. An examination of these concerns would guide developing teacher education programs (Murray-Harvey, Slee, Lawson, Silins, Banfield & Russel, 2000).

Anxiety in general is defined as a reaction of meaningless fear created by danger, a fear of unluckiness or the expectation of bad fortune (Budak, 2000). Teacher anxiety is especially observed in the last year of teacher education program in which student teachers participate in the teaching practicum. Practice teaching is a critical part of teacher education programs and it has a great effect and active role on improving student teachers' teaching skills. With practice, student teachers gain experience, however it can also lead to worrying problems that have to be dealt with. In addition, in a real classroom setting, teaching actual students under the observation of a faculty member and supervising teacher - that is, finding materials and methods for the topic, preparing the lesson plan, managing the classroom, and establishing collaborative communication with students- all increase the concern of the student teacher. There are investigations about student teachers' and teachers' occupational concerns in the literature (Fuller, 1969; Reeves & Kazelskis, 1985; Weinstein, 1989, 1990; O'Connor & Taylor, 1992; Guillaume & Rudney, 1993; MacDonald, 1993; O'Connell, 1994; Pigge & Marso, 1997; Morton, Vesco, Williams & Awender, 1997;

Chan & Leung, 1998; Ghaith & Shaaban, 1999; Murray-Harvey et al., 2000; Capel, 1997, 2001; Swennen, Jörg & Korthagen, 2004). Fuller's studies about concern in 1960s pioneered this field. According to Fuller, student teachers experience some concerns related to either their own development as students or to teaching. Fuller's concern model is a sequential, stable, and hierarchic model. In 1969, Fuller discussed concern-based model of teacher in three stages: self-related, task-related, and impact related stages.

As they proceed through the practice teaching period, student teachers experience concerns about the congruency between them and teaching as an occupation, they experience performance-related concerns when practicing, and they experience some concerns about the degree to which they have positive and significant impact on their students (Fuller, 1969). After some reviews, Fuller in 1970s and Fuller and Bown in 1975 demonstrated the stages of student teachers' concerns as follows: self-related concerns, task-related concerns, and impact-related concerns. Fuller stated that each teacher experienced these stages sequentially but the length of each period could vary with the individual. In the context of self-related concerns, the student teacher asks himself the following question: Will the students like me? Can I control the classroom? Gradually, these concerns self-related concerns decrease and task-related concerns begin to increase. With task-related concerns, the student teacher asks the following kind of questions: Will I have time enough to prepare the classroom for the lesson? How will I deal with high number of students? In the third stage, there are concerns related to student needs and the impact of teaching on student learning. How will I deal with the social and affective needs of my students? How will I adapt myself to different needs of students?

In some studies, Fuller's model was validated (O'Sullivan & Zielinski, 1988; Butler & Smith, 1989). For example, Conway and Clark (2003) investigated student teachers' concerns during 30-week formation education program. Interviews with six teachers showed that student teachers experienced some self-related concerns in the beginning of the program, later, some teaching and impact related concerns began to emerge.

Other research showed some different results. According to those studies, the student teacher experiences concerns not in a sequential way, rather, concerns emerge in unordered way (Tabachnick & Zeichner, 1984; Reeves & Kazelskis, 1985; Hord, Rutherford, Huling, Austin & Hall, 1987; Smith & Sanche, 1993). In Pigge and Marso's longitudinal (1997) study, they examined the concern levels of student teachers prior to practice teaching period, following the practicum, in the third year post graduation, and in the fifth year post graduation.

Capel (2001) used a measure called the Teacher Concerns Questionnaire (TCQ) (developed by George, 1978) in his study, and the questionnaire was given to student teachers of different backgrounds in three times. The result showed that the greatest reasons for concern were the self and impact; concerns about the task of teaching were found to be lower than the others. The author contended that the participating student teachers were well prepared for the teaching task. When analyzing the

concerns of student teachers, Morton *et al.* (1997) concluded that the student teachers had some level of confidence in terms of class management, pedagogy, evaluation, and staff relations, and their concerns were related to demographic, experiential, and dispositional variables. Hart (1987) associated concerns with 4 factors; evaluation concerns, pupil and professional concerns, class control, and teaching practice requirements. Hart's Student Teacher Anxiety Scale (STAS) is a 7-point and 26-item scale.

Studies related to Turkish student teachers' concerns are as follows: In his study, with 339 student teachers, Boz (2008) used the Teacher Concern Control List, which had been developed by Borich in 1992. The measure was adapted to Turkish by Boz. As in Fuller's model, the measure had items related to self-related concerns, teaching related concerns and impact related concerns. The results showed that teachers had concerns in all three dimensions, with the task related concerns being the highest. In the task related concerns, teachers reported that they were most concerned about dealing with high number of students in the classroom, disputes related to school management, and inflexibility of curriculum.

Student teachers have lower levels of concerns. Yayli and Hasirci (2009) and Saban, Korkmaz, and Akbasli (2004) supported Boz's study. These concerns reflect classrooms and their curricula's structures. In Turkey, classrooms in general are crowded, curricula are densely packed with content, and the programs are inflexible. Teachers' concerns were affected by school, program and classroom structures (Pigge & Marso, 1997; Richardson & Placier, 2001).

While concern was higher in all three levels, it decreased in second year, but it gradually increased in the following years. In his study, Paker (2011) adapted Hart's (1987) STAS measure, which was adapted to classroom student teachers by Morton *et al.* (1997), to English teacher education field. 101 student teachers participated to the study. In addition to application of the scale, some interviews were conducted. Results indicated that student teachers had concerns the most serious level of concern about the evaluation of their performance and classroom management.

Cakmak (2008) administered his own Likert-type measure to 156 student teachers. According to the results of the study, student teachers had deep concerns about classroom management. Student teachers' concerns also affected their occupational improvement, so this topic is worth investigating (Guillaume & Rudney, 1993). General concerns determined via measures might be useful in improving the content and sequence of teacher education programs (Capel, 2001).

Research indicates that student teachers experience a specific concern and their occupational concern was measured by scales that were specific to that concern. Practice teaching has some national and cultural elements. Class size where practice teaching is conducted is high. Equipment that student teachers can use when preparing or practicing for the classroom is not adequate (Uzel, Diken, Yılmaz & Gül, 2011; Aşan, 2002). Candidates have problems such as not getting feedback from their supervisors and not having adequate contact with them (Paker, 2005). Because curricula are densely packed with content, student teachers might have some

problems with time management. Considering the research in Turkey, there was not any unique scale development study in relation to teacher or student teacher concerns. The research that has been conducted consists of surveys or adaptations of the existing measures. Different adaptation studies for the same measure showed that their findings about validity and reliability were considerably different from each other. In addition, no study was found examining concern about being evaluated by supervisor, other than Paker's (2011) adaptation study of Hart's (1987) scale. Therefore, developing a unique student teacher concern scale involving local practices is needed.

Method

Model and Participants

The study was conducted in a survey model. 5.4% of the participants (n=37) were students of Ankara University, whereas 51.1% of the participants (n= 348) were students of Gazi University, and 43.5% (n=296) of them were from Hacettepe University. 62.1% (n=423) of the participants were females, and 37.9% (n=258) of them were males. Age ranges of the participants were 20 to 39, with the average being 22.40 (sd=1.40). Convenience sampling method was used and the participants were reached from the departments of faculty of education in three universities of Ankara. Participants' variances its according to their departments were as follows: 16.3% (n=111) Computer Education and Instructional Technology, 14.8% (n=101) Primary Education, 7.3% (n=50) History Education, 6.3% (n=43) Social Science Education, 14.8% (n=101) English, 5.3% (n=36) Geography, 14.0% (n=95) Mathematics, 5.0% (n=34) Science Education, 2.1% (n=14) Secondary Turkish Language Education, 1.3% (n=9) Turkish Language and Literature Education, 2.5% (n=17) Physics Education, 8.1% (n=55) Chemistry Education, and 2.2% (n=15) Biology Education.

Research Instrument

Demographic questionnaire: The questionnaire was developed by the researchers to collect university, department and sex information of the participants.

Student teacher concern scale (STCS). The scale was developed in this study. It contained 23 items with two factors, which were called class management and concern of being evaluated. The scale was a 5-point Likert-type scale ranged from 1 to 5 (1=never; 2=rarely; 3=sometimes; 4= often and 5=always). Numbers of the the scale range from 19 to 95. The higher scores indicated higher levels of tendency to concerns.

Development process of the STCS. In the development process of Student Teacher Concern Scale, literature involving concerns related to teaching profession was reviewed based on the knowledge gathered from this literature review, 98 (50 males, 48 females) student teachers from different departments of Faculty of Education of Gazi University, were asked open-ended questions about their concerns in relation to practice teaching, and their responses were obtained in written format (e.g. what are your concerns about classroom management?) An item pool was prepared according

to those responses. Peer reviews of three faculty members of Curriculum and Instruction Department and three faculty members of Psychological Counseling and Guidance Department were made. Then, common comments were selected and a draft of 23-item form obtained from the item pool was created. Six experts from Counseling and Curriculum Department of Gazi University reviewed the draft. The draft administered to the students from three universities (n=681).

Procedure

The items of the scale were generated based on interviews with 98 student teachers (50 males, 48 females) from different departments of Education Faculty of Gazi University. The draft was administered to student teachers from three universities (n=681) in Ankara in 2011-2012 academic year. Permission was obtained from the ethics committees of the universities. Participants were asked to complete the scale in the classes. The scale was administered to students who participated voluntarily. The scale was administered by the researchers. The scale was completed in 15 minutes. The required instructions were given in advance to better inform and motivate them to complete the scale in appropriate and timely manner.

Data analysis

Construct validity of the scale was examined using exploratory and confirmatory factor analysis, and evidence for construct validity was explored via convergent and discriminant validities (Hair et al., 2010). Reliability of the measurement was tested using Cronbach's alpha, stratified, and composite alpha methods. In the first stage of analysis, observations in the data set were divided into two parts randomly, and principal component and exploratory factor analyses were run for the first data set (n=338), whereas a confirmatory factor analysis was conducted for the second data set (n=343) (Tabachnick & Fidell, 2013).

For the first study, outlier check, multicollinearity, linearity, and normality assumptions were examined (Hair et al., 2010; Kline, 2010; Tabachnick & Fidell, 2013). There was no multicollinearity and it was seen that removing the univariate and multivariate outlier cases orperforming appropriate transformations for the variables having skewness (range from -1.964 to 1.347; p=.00) or kurtosis (range from -1.55 to 4.75; p=.00) did not make any substantial change in the structure extracted from the raw data. After reversed–scored items were transformed, analyses were conducted on those raw scores. For the analyses, Factor 8.1 and SPSS 21 packages software were utilized for EFA and lisrel 880 was used for CFA. Along with the methods of minimum rank factor analysis for extracted dimensions; size of eigenvalues, screeplot, parallel analysis, MAP test and average eigenvalue approaches were utilizedfor determining the number of factors while performing principal component analysis on polychoric correlations(Lorenzo-Seva & Ferrando, 2013). Since the correlations between the factors were lower than .30, varimax rotation method was used. The items loaded on a factor with the value of higher than .30 remained in the final form. In addition, cross-loaded items with minor weight differences (lower than .20) were removed (Hair, Black, Babin& Anderson, 2010).

Tabachnick and Fidell (2007) stated that for an exploratory factor analysis to be run, a sample comprised of at least 300 observations was needed. On the other hand,

MacCallum, Wideman, Zhang, and Hong (1999) asserted that determining any common criteria for sample size was useless. According to MacCallum et al. (1999), even a sample size of 100 participants would be adequate for factor analysis, when all of the factors in a model explain higher than .60 communality variance of each of the items, and the factor loadings are higher than .80 for each of the items. They suggested, however, when the communalities were at lower levels (>.40), a higher number of factors existed, and there were only a few items per factor, then even a sample of 500 participants would not be adequate.

Similarly, De Winter, Dodou and Wieringa (2009) concluded that with the help of estimating a proportion of sample size or the number of participants with the number of items was no longer needed, the sample size can vary according to communalities, factor loadings, the number of items in each of the factors, and the number of factors in the model.

Stevens asserted that the sample size is not the critical issue for a reliable factor having at least 3 items with the loadings of at least .80, or at least 4 items with the loadings around .60. In the case of a factor having at least 10 items with the loadings of around .40, the sample size could be ≥150; for the factors having only few loadings, it should be ≥300. In this study, the communalities ranged between .16 - .59 (*M*=.35). As seen above, there are many opinions about to determination of the factor number and the size of factor loadings. Performing a synthesis of the views, it is accepted that the loading sat own factor to be more than.40. Besides, considering other criteria, a sample size of 338 participants would be seen as adequate.

In structural models, sample size with 200 participants was acceptable, but it was reported that the sample size should be ten times higher than number of parameters (Kline, 2010). Hypothesis model involved 39 free parameters. In this case, 39*10=390 participants were needed. However, there has been an argument on sample size for confirmatory factor analysis, as there was on exploratory factor analysis. Therefore, a power analysis using a SAS syntax written by MacCallum, Browne, and Sugawara (1996) was performed to determine the sample size for confirmatory factor analysis. When conducting the power analysis, a power value of .80, and the following values were taken as reference: RMSEA .00 - .03, alpha level=.05, df=151, and group=1. Based on those reference values, the sample size was calculated as 359 participants. Along with this calculation, assumptions of confirmatory factor analysis were checked prior to running the analysis, as was the case in the exploratory factor analysis.

Results

In this section, findings of exploratory, confirmatory factor analyses, and internal consistency of STCS were given.

Validity and Reliability Study

Principal component analysis (PCA) revealed seven components with the eigenvalues higher than 1.00. Half of the eigenvalues obtained from 23-item data set was calculated as 6.88. This approach indicated a removal of two components (5.10 and 3.04) from the scale was needed. In addition, results of scree plot (as seen Figure

1), MAP test and parallel analyses showed that these two components were statistically significant.

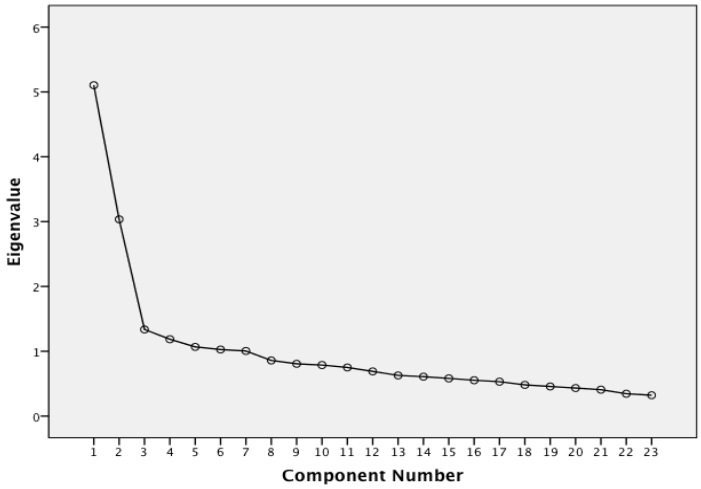


Figure 1: Scree plot

PCA's KMO was found to .85; Barlett's Test of Sphericity (χ^2_{253}) was 1773.00, p= .00. In the light of these findings, an exploratory factor analysis (EFA) was performed for a two-factor structure. Findings revealed that two factors explained 35.11% of total variance (sum of eigenvalues=8.08). In addition, it was seen that item-factor relationships did not vary based on using different rotations and factor extraction methods. Factor analysis results are given in Table 1 in which minimum rank factor extraction and varimax rotation methods were used.

Table 1

STCS' Factor Loadings with Varimax Rotation and Item – Dimensions Correlations

	ITEMS	*I-T Cor.***	*F1*	*F2*
1.	I get irritated when I can't find adequate amount of resources related to topic.			
2.	I don't have any concerns about class management.*	.59	.68	
3.	I worry about giving insufficient answers to the questions of students.	.52	.62	
4.	I know how to deal with unexpected cases.*	.60	.68	
5.	I believe that I can give lectures in an effective and amusing way.*	.46	.59	
6.	I worry about the thought that I fail to establish effective communication with the students.	.47	.58	
7.	I don't have any concerns about finding methods and techniques appropriate for the topic.*	.42	.51	

Table 1 comtinue…

ITEMS	I-T Cor.**	F1	F2
8. I fear that I cannot keep the attention of the students.	.69	.74	
9. I am concerned about how to deal with the problematic students.	.56	.63	
10. I am concerned about using Turkish in a correct way.			
11. I have some concerns about whether my physical appearance is appropriate for teaching.			
12. I get upset when I cannot motivate the students about the lesson.	.41		.59
13. I experience the fear of not being able to use body language effectively.	.53	.64	
14. I feel tension because of being overexcited.	.44	.52	
15. I am negatively affected by students' lower levels of readiness.			
16. I am positively affected if the students are respectful to me. *	.34		.51
17. I am concerned about my practice supervisor's negative evaluation of my performance.	.45	.56	
18. I feel offended if my practice supervisor is uninterested and distant from me.	.43		.54
19. I feel offended if my practice supervisor criticizes me in front of the students.	.54		.65
20. I get motivated if my teaching supervisor is respectful to me and regards me as a colleague*	.54		.67
21. I feel discomfort when a faculty member finds my performance inadequate.	.38		.50
22. I feel discomfort if the faculty member acts strictly and intolerantly to me.	.64		.75
23. I feel offended if the faculty member does not make an objective evaluation.	.52		.67
Total variance explained (%)	20.44	14.67	

* Reversely scored items ** Item - Dimension (Total) Correlations

As it was seen in Table 1, items in the first factor had factor loadings from .56to .74. In the second factor, factor loadings were between .50 and .75. Based on the contents of the items loaded on the factors, the first factor was called as "Class management" and the second factor was named as "Concern about being evaluated". In addition, items 1, 10, 11, and 15 were excluded from the data set because of their lower levels of factor loadings (<.40). Following the exclusion of those items, exploratory factor analysis was performed again. The first factor explained variance increased to 23.16%, and the secondfactor explained rose to 17,29% of the total variance (total=40.45%). Item-total correlations for the first factor were between .42 and .69; for the second factor they were between .34-.64. Internal

consistencies of the factors (Cronbach's alpha) were .84and .77respectively. Stratified alpha was found to be .84using the equation below:

$$Stratfied\ \alpha = 1 - \frac{\Sigma \sigma_{xj}^2 (1-\alpha_j)}{\sigma_x^2}$$

$$- \frac{46.08(1-.84)+24.48(1-.77)}{82.55}$$

In the second stage of the analysis, a confirmatory factor analysis was conducted on the second half of the data set to examine how well the two-factor structure explains the relationships among data gathered for the second half of the data set. Results are presented in Figure 2. As seen in the Figure 2, standardized weights of items in the class management dimension were between .74and .93, whereas the standardized weights in the evaluation dimension were between .63and .91. Goodness of fit indices for the model was found to be acceptable: (x^2_{151} =724.02; *p*=.00; Normed x^2 = 4.79; CFI=.88; GFI=.94; AGFI= .92; RMSEA=.11and GA=.10-.11). In the first dimension, item total correlations were between .45 and .68; those correlations were between .41and .62for the second dimension. Cronbach's alpha for the first dimension was .85, Cronbach's alpha for the second dimension was found to

$$CR = \frac{(\Sigma_{i=1}^{n} \lambda_i)^2}{(\Sigma_{i=1}^{n} \lambda_i)^2 + (\Sigma_{i=1}^{n} \delta_i)}$$

be .79.. Raykov and Shrout (2002) stated that when only the error terms were uncorrelated and factor loading were equal (tau equation) in the model, internal consistency could calculate the reliability correctly. In the other cases, estimations made using this method could reveal results higher or lower than the actual results (Hair, Black, Babin& Anderson, 2010). For this reason, reliability coefficients for subdimensions and for the overall scale were calculated separately.

(CR= reliability, λ_i = i. standardized item weight and δ_i = i. error term of item)

With the help of the equation above, t reliability coefficients were found to be .95 for class management, .92 for concern of being evaluated, and .91 for the overall scale.

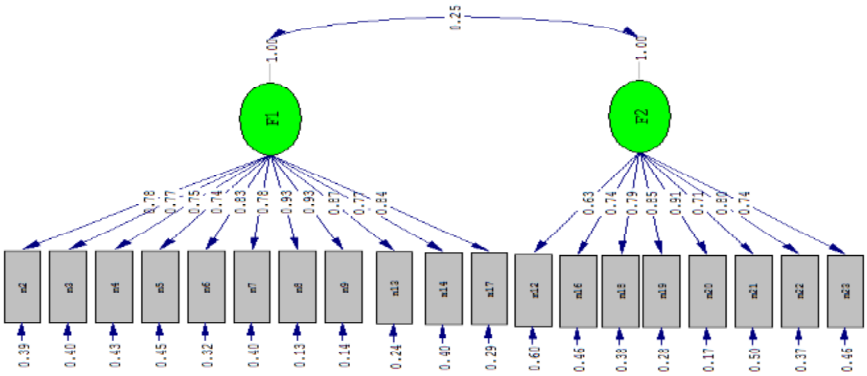


Figure 2. Confirmatory factor analysis (Standardized weights)

Furthermore, the average variance explained (AVE) was found to be .67 for class management (F1), and .60 for being evaluated with the help of the equation below:

$$AVE = \frac{\sum_{i=1}^{n} \lambda_i^2}{n}$$

According to these results, in addition to goodness of fit indices, having standardized weights higher than .50, calculating .90and higher values of reliability coefficients, having reliability coefficients bigger than AVE indicated that the model had an acceptable convergent validity.

Square of coefficient between two dimensions were compared with the explained mean variances of the dimensions to calculate the discriminant validity of STCS: The correlation between two dimensions was .25, so $.25^2$ is .06. The mean variances explained by the two dimensions were .67and .60respectively. These coefficients were considerably higher than the squared correlation of dimensions. Moreover, since the confidence interval for .25(CI=.25± 1.96*.03) were between .19and .31; and it did not cover "1". It can be concluded that the scale did not have a one-factor structure.

These results indicated that the scale has discriminant validity. In other words, the items had stronger relationships with the existing structure rather than with other potential structures. Moreover, when dividing the coefficient between two dimensions to its standard error, a value of t=8.33, p<.01 was found. This means that the relationship between the dimensions was low but statistically significant. When the items were examined in terms of their contents, a significant relationship between the dimensions was expected, which means nomologic validity was met. Therefore, evidence for convergent and discriminant validities indicates the presence of construct validity.

Discussion and Conclusions

The purpose of the present study was to develop a measure describing student teacher's concerns about practice teaching process. Firstly, an item pool was constituted, then some amendments on the items were performed based on the peer reviews, and a form for pilot study was acquired.

Factor structure (exploratory factor analysis) of the scale was determined, construct validity was tested, and the reliability was calculated. Results of the exploratory factor analysis extracted two-factor solution: (1) class management, and (2) being evaluated. The class management dimension had 11 items, while 8 items were loaded in the dimension of being evaluated. Both validity and reliability coefficients were at acceptable levels.

Class management was one the most frequent concerns reported by student teachers. A great amount of research has supported this finding (Fuller & Bown, 1975 ; Moore & Cooper, 1984; Hart, 1987; Maynard & Furlong, 1993; Jones & Vesilind, 1995; Capel, 2001; Hsu, 2005; Moore, 2003; Poulou, 2007). Cakmak (2008), Boz (2008), and Tok's studies conducted among Turkish student teachers indicated that behavior management skills, motivating the students, and establishing communication were the most frequent class management-related problems that student teachers experienced.

One of the other concerns that student teachers frequently have was being evaluated by faculty member and supervising teacher. Similar findings in the previous research support this finding (MacDonald, 1993; Capel, 1997, 1998, 2001; Fives, Hamman & Olivarez, 2007; Paker, 2011).

Student teachers' roles both as teachers and students, regulations like professional tasks established by the teachers, the obligation to comply with the decisions previously made, and being under limited control in the educational settings, made the student teachers experience burnout, especially during the practice teaching period. In this case, supervisors' task is critical according to Fives, Hamman, and Olivarez (2007). McDonald (1993) stated that inconsistent evaluations, expectations and feedback of teaching supervisors can create overstress on student teachers.

In order for student teachers to be self-confident, their concerns are needed to be determined. To help them decrease their concerns, they need to be supported in dealing with crowded classrooms and strict curriculum structure. Determining the concerns of student teachers might help in the development of better teacher education programs. Teacher educators should determine pre-service teachers' concerns and support strategies that can help deal with those concerns. Moreover, a sharing atmosphere can be established to show student teachers that other student teachers and even professional teachers can have similar concerns.

In this study, measures in the literature having different subdimensions related to concerns of the student teachers were examined, and a detailed, reliable, and useful new scale was developed. This student teacher concerns scale involved only concerns

during the practice teaching period. This scale is thought to be utilized in determining the difficulties student teachers have in practice teaching, in improving the teacher education programs, and in helping supervisors and related researchers. Future, more detailed, studies might focus on the improvement of the measurement of student teacher concerns.

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Öğretmen Adayı Kaygı Ölçeğinin Geliştirilmesi

Atıf:

Alpan, B.G., Özer, A., Erdamar, K.G. & Subaşı, G. (2014). The Development of a Student Teacher Concerns Scale. *Eurasian Journal of Educational Research,* 54, 151-170.

Özet

Problem Durumu: Öğretmen adayı özelliklerini bilişsel ve duyuşsal giriş davranışları oluşturmaktadır. Bilişsel giriş davranışları alanıyla ilgili ön öğrenmeleri içerirken, duyuşsal giriş davranışları ise genel ve akademik benlik tasarımını, başarıya olan inancı, ilgilerini ve tutumlarını içermektedir. Öğretmenlik uygulaması, öğretmen adayının öğretim becerilerini kazanması ve geliştirmesinde etkin rol oynar. Öğretmenlik uygulamasında öğretmen adayları bazı kaygılar yaşamaktadırlar. Öğretmen adayı kaygıları, başta öğretmen adayı özellikleri olmak üzere öğretim hizmetinin niteliği, öğrenme ürünleri gibi eğitim programını oluşturan diğer içsel ve dışsal koşulları etkilemektedir. Öğretmen adayları, sınıf yönetimi, uygun yöntem-teknik kullanma ve materyal seçme ve hazırlama, öğrencilerle iletişim, uygulama öğretmenlerinin ve öğretim üyelerinin performanslarını gözlemliyor ve değerlendiriyor olması gibi nedenlerden dolayı kaygı duymaktadırlar. Türkiye'de yapılan araştırmalara bakıldığında, öğretmen veya öğretmen adayı kaygılarına ilişkin özgün bir ölçek çalışması ile karşılaşılmamıştır. Yapılan çalışmalar, araştırmalara özgü hazırlanmış anketler ve mevcut ölçeklerin uyarlanmasıdır. Bu yüzden yerel uygulamaları kapsayan bir öğretmen adayı kaygı ölçeğinin geliştirilmesine gereksinim duyulmuştur.

Araştırmanın Amacı: Öğretmen adaylarının öğretmenlik uygulaması sürecinde yaşadıkları kaygıların ve düzeylerinin belirlenmesine yönelik özgün bir ölçek geliştirmektir.

Araştırmanın Yöntemi: Öğretmen Adayları Kaygı Ölçeğinin geliştirildiği bu araştırmada, önce Gazi Üniversitesi Eğitim Fakültesinin farklı bölümlerinde, 2011-2012 eğitim ve öğretim yılında öğrenime devam eden 98 öğretmen adayından (50 erkek, 48 kadın) elde edilen görüşler ve literatür taraması sonucunda 40 maddelik bir havuz oluşturulmuştur. Bu havuz 6 uzmanın incelemeleri sonucunda 23 maddeye indirilmiş, daha sonra 23 maddelik form Ankara ilindeki 3 üniversitede 2011-2012 eğitim ve öğretim yılında öğrenimlerine devam eden toplam 681 öğretmen adayına (% 63.3'ü (423) kadın, % 36.7'si (258) erkek) uygulanmıştır. Öğretmen adaylarının yaşları 19 ile 39 arasındadır (Ortanca=22). Formdan elde edilen ölçümler önce rastgele ikiye bölünmüş, veri setinin ilk parçasında betimleyici; ikinci setinde doğrulayıcı faktör analizi yapılarak ölçümlerin yapı geçerliği araştırılmıştır. Ayrıca her iki veri setinde ölçümlerin güvenirlikleri de Cronbach ve tabakalı alfa, yapı güvenirlik katsayılarıyla araştırılmıştır.

Bulgular ve Sonuçlar: Bu çalışmada öğretmen adayının öğretmenlik uygulaması sürecinde yaşadığı kaygıları betimlemeye yönelik bir ölçeğin geliştirilmesi amaçlanmıştır. Öncelikle öğretmen adayı kaygı ölçeği madde havuzu oluşturulmuş, daha sonra uzman görüşlerine dayalı olarak maddelerde gerekli düzeltmeler yapılarak, ön uygulamaya hazır hale getirilmiştir. Ölçeğin faktör yapısının belirlenmesi, yapı geçerliğinin test edilmesi ve güvenirlik çalışmalarının yapılması işlemleri gerçekleştirilmiştir. Betimleyici faktör analizi sonucunda ölçeğin iki faktörden oluştuğu görülmüştür. Bu faktörlere; (1) Sınıf Yönetimi, (2) Değerlendirilme adı verilmiştir. Sınıf yönetimi 11; değerlendirilme boyutu 8 maddeden oluşmaktadır. Birinci boyutta yer alan maddelerin faktör yükleri .56 ile.74; ikinci boyutta yer alan maddelerin faktör yükleri ise .50 ile .75 aralığındadır. Buna ek olarak 1, 10, 11 ve 15. maddeler düşük faktör yüklerine (<.40) sahip olduklarından veri setinden çıkarılmışlardır. Düşük yüke sahip maddeler veri setinden çıkarıldıktan sonra betimleyici faktör analizi tekrarlanmış, açıklanan varyansın ilk boyutta % 23.16'ya, ikinci boyutta ise % 17.29'a yükseldiği saptanmıştır (Toplam % 40.45). İlk boyutun madde toplam korelasyonları .42 ile .69; ikinci boyutun .34 ile .64 arasındadır. Boyutların iç tutarlık katsayıları (Cronbach alfa) sırasıyla .84 ve .77'dir. İki boyutun bileşiminden elde edilen tabakalı alfa katsayısı .84'tür. Analiz sürecinin ikinci aşamasında, iki boyutlu yapının, araştırma örnekleminin diğer parçasından elde edilen veriler arasındaki ilişkileri ne ölçüde açıkladığını incelemek amacıyla doğrulayıcı faktör analizi yapılmıştır.

Sınıf yönetimi boyutunda yer alan maddelerin standartlaştırılmış ağırlıkları .74-.93; değerlendirme boyutunda yer alan maddelerin ağırlıkları ise .63-.91 aralığındadır. Modele ilişkin genel uyum katsayıları yeterli düzeydedir. İlk boyutta madde toplam korelasyonları .45-.68; ikinci boyutta .41-.62 arasındadır. İlk boyutun iç tutarlık katsayısı .85 iken; ikinci boyutun 79'dur. Yapı güvenirlik katsayısı sırasıyla.92 ve .91'dir. Bu sonuçlara göre, kabul edilebilir düzeyde genel uyum ek olarak, standartlaştırılmış ağırlıkların (12 ve 21. maddeler dışında) .50'den, güvenirlik

katsayılarının (CR) .70'den büyük olmaları, CR'lerin AVE'lerden büyük olmaları modelin benzeme geçerliğinin varlığına işaret ederken; boyutların açıkladıkları ortalama varyansın .50'den küçük olması, maddelerdeki hata varyansının faktör tarafından açıklanan varyanstan daha büyük olduğu anlamına gelmektedir. Ayrıca iki boyut arasındaki ilişki katsayısı (r= .25), standart hatasına (.03) bölündüğünde, t=8.33, p<.01 değeri elde edilmektedir. Bu değer, boyutlar arasındaki ilişkinin düşük fakat istatistiksel bakımdan önemli olduğunu göstermektedir. Maddeler içerik açısından incelendiğinde, boyutlar arasında anlamlı bir ilişkinin olması beklenen bir durumdur. Sonuç olarak, benzeme ve ayırma geçerliklerine ilişkin kanıtlar, ölçeğin yapı geçerliğinin varlığını işaret etmektedir.

Sınıf yönetimi, öğretmen adayı kaygıları arasında sıklıkla yer almaktadır. Birçok araştırma ÖAKÖ'nün sonucunu desteklemektedir. Öğretmenlik uygulaması sürecinde öğretim elemanı ve uygulama öğretmeni tarafından değerlendirilme kaygısı öğretmen adayının yüksek oranda yaşadığı kaygılardan bir diğeridir.

Bu çalışmada, literatürdeki çeşitli alt boyutlardan oluşan öğretmen adayı kaygı ölçekleri incelenerek; güvenilir, kullanışlı ve yeni bir ölçek geliştirilmeye çalışılmıştır. Öğretmen adayı kaygı ölçeği öğretmenlik uygulaması süreciyle sınırlandırılmıştır. Bu ölçeğin öğretmen adaylarının öğretmenlik uygulamasında yaşadıkları güçlüklerin belirlenmesinde ve öğretmenlik uygulaması sürecindeki eksiklerin giderilmesinde, öğretmen yetiştiren kurumların programlarının geliştirilmesinde; öğretmenlik uygulamasının yapıldığı ilköğretim - orta öğretimde - üniversitede görevli öğretmenlere-öğretim elemanlarına ve konuyla ilgili araştırmacılara yol göstereceği düşünülmektedir

Öneriler: Öğretmen eğitimcileri öğretmen adaylarının kaygılarını belirlemeli ve adayların bu kaygılarla başa çıkmasını sağlayıcı stratejileri kazanmalarını desteklenmelidir. Ayrıca adayların kaygılarını paylaşmaları sağlanarak, diğer adayların ve hatta öğretmenlerin de benzer kaygılar yaşadıklarını görmeleri, kaygıların azalmasına yardımcı olabilir.

Anahtar Sözcükler: Öğretmenlik uygulamasında kaygı, öğretmenlik Uygulaması, öğretmen adayı kaygı ölçeği

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The Development of a Student Teacher Concerns Scale

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Abstract

Problem Statement: Practice teaching is an important element in teacher education programs and it plays an active role in student teacher's obtaining and improving their teaching skills. However, student teachers have some concerns, since they are observed and evaluated by their supervisors in terms of class management, methods and techniques, preparation, and communication with students. A unique concern scale might be developed to measure the nature and degree of the concerns that affect student teachers.

Purpose of the Study: The purpose of the study is to develop a unique scale that measures the types and degrees of student teachers' concerns over the course of practice teaching period.

Method: A student teachers' Concern Scale was developed based on the literature and on interviews with 98 student teachers (50 males, 48 females) from different departments of Education Faculty of Gazi University in 2011-2012 academic year. The form was revised in response to peer review, and student teachers of different departments from three universities (n=681) in Ankara (Gazi University n=348; Hacettepe University n=296; Ankara University n= 37) were given the revised draft of the 23-item form 423 of participants were females and 258 of them were males (Median=22). The construct validity of the scale was examined via exploratory and confirmatory factor analyses. The reliability of the measurement was tested using Cronbach's alpha and stratified alpha methods.

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Findings and Results: Principle component and exploratory factor analyses showed a two-factor solution of (1) class management (11 items; variance explained: 23.16%), (2) evaluation (8 items; variance explained: 17.29%) in the first sample. Confirmatory factor analysis revealed acceptable goodness of fit indices ($\chi^2_{151} = 724.02$; p=.00; Normed x^2= 4.79; CFI=.88; GFI= .94; AGFI= .92; RMSEA=.11 and 90% C.I. =.10 - .11for RMSEA), and item-total correlations were between .38 and .69. Reliability coefficients were .84 and .95 for class-management, .79 and .92 for evaluation, .84 for overall scale.

Recommendation: Student teacher Concern Scale can be utilized to eliminate some weaknesses in practice teaching experience, improvement in programs in teacher education institutions, to guide related researchers.

Keywords: concern in the teaching practicum, teaching practicum, student teacher concern scale

Countries successful in education give a special importance on teacher education (OECD, 2012; Eraslan, 2009; Simola, 2005; Türkoğlu, 2005). Internal and external conditions such as characteristics of student teachers, quality of teaching services, and learning outputs are considered in forming teacher education programs. Cognitive and affective onset behaviors constitute student teacher characteristics. Cognitive onset behaviors include basic learning in related field, while the affective onset behaviors consisted of teachers' overall and academic self-concept of ability, beliefs of success, interests, and attitudes. Student teachers' concerns primarily affect characteristics of student teachers, and they also have impact on the other internal and external conditions of education programs like the quality of teaching service and learning outputs. An examination of these concerns would guide developing teacher education programs (Murray-Harvey, Slee, Lawson, Silins, Banfield & Russel, 2000).

Anxiety in general is defined as a reaction of meaningless fear created by danger, a fear of unluckiness or the expectation of bad fortune (Budak, 2000). Teacher anxiety is especially observed in the last year of teacher education program in which student teachers participate in the teaching practicum. Practice teaching is a critical part of teacher education programs and it has a great effect and active role on improving student teachers' teaching skills. With practice, student teachers gain experience, however it can also lead to worrying problems that have to be dealt with. In addition, in a real classroom setting, teaching actual students under the observation of a faculty member and supervising teacher - that is, finding materials and methods for the topic, preparing the lesson plan, managing the classroom, and establishing collaborative communication with students- all increase the concern of the student teacher. There are investigations about student teachers' and teachers' occupational concerns in the literature (Fuller, 1969; Reeves & Kazelskis, 1985; Weinstein, 1989, 1990; O'Connor & Taylor, 1992; Guillaume & Rudney, 1993; MacDonald, 1993; O'Connell, 1994; Pigge & Marso, 1997; Morton, Vesco, Williams & Awender, 1997;

Chan & Leung, 1998; Ghaith & Shaaban, 1999; Murray-Harvey et al., 2000; Capel, 1997, 2001; Swennen, Jörg & Korthagen, 2004). Fuller's studies about concern in 1960s pioneered this field. According to Fuller, student teachers experience some concerns related to either their own development as students or to teaching. Fuller's concern model is a sequential, stable, and hierarchic model. In 1969, Fuller discussed concern-based model of teacher in three stages: self-related, task-related, and impact related stages.

As they proceed through the practice teaching period, student teachers experience concerns about the congruency between them and teaching as an occupation, they experience performance-related concerns when practicing, and they experience some concerns about the degree to which they have positive and significant impact on their students (Fuller, 1969). After some reviews, Fuller in 1970s and Fuller and Bown in 1975 demonstrated the stages of student teachers' concerns as follows: self-related concerns, task-related concerns, and impact-related concerns. Fuller stated that each teacher experienced these stages sequentially but the length of each period could vary with the individual. In the context of self-related concerns, the student teacher asks himself the following question: Will the students like me? Can I control the classroom? Gradually, these concerns self-related concerns decrease and task-related concerns begin to increase. With task-related concerns, the student teacher asks the following kind of questions: Will I have time enough to prepare the classroom for the lesson? How will I deal with high number of students? In the third stage, there are concerns related to student needs and the impact of teaching on student learning. How will I deal with the social and affective needs of my students? How will I adapt myself to different needs of students?

In some studies, Fuller's model was validated (O'Sullivan & Zielinski, 1988; Butler & Smith, 1989). For example, Conway and Clark (2003) investigated student teachers' concerns during 30-week formation education program. Interviews with six teachers showed that student teachers experienced some self-related concerns in the beginning of the program, later, some teaching and impact related concerns began to emerge.

Other research showed some different results. According to those studies, the student teacher experiences concerns not in a sequential way, rather, concerns emerge in unordered way (Tabachnick & Zeichner, 1984; Reeves & Kazelskis, 1985; Hord, Rutherford, Huling, Austin & Hall, 1987; Smith & Sanche, 1993). In Pigge and Marso's longitudinal (1997) study, they examined the concern levels of student teachers prior to practice teaching period, following the practicum, in the third year post graduation, and in the fifth year post graduation.

Capel (2001) used a measure called the Teacher Concerns Questionnaire (TCQ) (developed by George, 1978) in his study, and the questionnaire was given to student teachers of different backgrounds in three times. The result showed that the greatest reasons for concern were the self and impact; concerns about the task of teaching were found to be lower than the others. The author contended that the participating student teachers were well prepared for the teaching task. When analyzing the

concerns of student teachers, Morton *et al.* (1997) concluded that the student teachers had some level of confidence in terms of class management, pedagogy, evaluation, and staff relations, and their concerns were related to demographic, experiential, and dispositional variables. Hart (1987) associated concerns with 4 factors; evaluation concerns, pupil and professional concerns, class control, and teaching practice requirements. Hart's Student Teacher Anxiety Scale (STAS) is a 7-point and 26-item scale.

Studies related to Turkish student teachers' concerns are as follows: In his study, with 339 student teachers, Boz (2008) used the Teacher Concern Control List, which had been developed by Borich in 1992. The measure was adapted to Turkish by Boz. As in Fuller's model, the measure had items related to self-related concerns, teaching related concerns and impact related concerns. The results showed that teachers had concerns in all three dimensions, with the task related concerns being the highest. In the task related concerns, teachers reported that they were most concerned about dealing with high number of students in the classroom, disputes related to school management, and inflexibility of curriculum.

Student teachers have lower levels of concerns. Yayli and Hasirci (2009) and Saban, Korkmaz, and Akbasli (2004) supported Boz's study. These concerns reflect classrooms and their curricula's structures. In Turkey, classrooms in general are crowded, curricula are densely packed with content, and the programs are inflexible. Teachers' concerns were affected by school, program and classroom structures (Pigge & Marso, 1997; Richardson & Placier, 2001).

While concern was higher in all three levels, it decreased in second year, but it gradually increased in the following years. In his study, Paker (2011) adapted Hart's (1987) STAS measure, which was adapted to classroom student teachers by Morton *et al.* (1997), to English teacher education field. 101 student teachers participated to the study. In addition to application of the scale, some interviews were conducted. Results indicated that student teachers had concerns the most serious level of concern about the evaluation of their performance and classroom management.

Cakmak (2008) administered his own Likert-type measure to 156 student teachers. According to the results of the study, student teachers had deep concerns about classroom management. Student teachers' concerns also affected their occupational improvement, so this topic is worth investigating (Guillaume & Rudney, 1993). General concerns determined via measures might be useful in improving the content and sequence of teacher education programs (Capel, 2001).

Research indicates that student teachers experience a specific concern and their occupational concern was measured by scales that were specific to that concern. Practice teaching has some national and cultural elements. Class size where practice teaching is conducted is high. Equipment that student teachers can use when preparing or practicing for the classroom is not adequate (Uzel, Diken, Yılmaz & Gül, 2011; Aşan, 2002). Candidates have problems such as not getting feedback from their supervisors and not having adequate contact with them (Paker, 2005). Because curricula are densely packed with content, student teachers might have some

problems with time management. Considering the research in Turkey, there was not any unique scale development study in relation to teacher or student teacher concerns. The research that has been conducted consists of surveys or adaptations of the existing measures. Different adaptation studies for the same measure showed that their findings about validity and reliability were considerably different from each other. In addition, no study was found examining concern about being evaluated by supervisor, other than Paker's (2011) adaptation study of Hart's (1987) scale. Therefore, developing a unique student teacher concern scale involving local practices is needed.

Method

Model and Participants

The study was conducted in a survey model. 5.4% of the participants (n=37) were students of Ankara University, whereas 51.1% of the participants (n= 348) were students of Gazi University, and 43.5% (n=296) of them were from Hacettepe University. 62.1% (n=423) of the participants were females, and 37.9% (n=258) of them were males. Age ranges of the participants were 20 to 39, with the average being 22.40 (sd=1.40). Convenience sampling method was used and the participants were reached from the departments of faculty of education in three universities of Ankara. Participants' variances its according to their departments were as follows: 16.3% (n=111) Computer Education and Instructional Technology, 14.8% (n=101) Primary Education, 7.3% (n=50) History Education, 6.3% (n=43) Social Science Education, 14.8% (n=101) English, 5.3% (n=36) Geography, 14.0% (n=95) Mathematics, 5.0% (n=34) Science Education, 2.1% (n=14) Secondary Turkish Language Education, 1.3% (n=9) Turkish Language and Literature Education, 2.5% (n=17) Physics Education, 8.1% (n=55) Chemistry Education, and 2.2% (n=15) Biology Education.

Research Instrument

Demographic questionnaire: The questionnaire was developed by the researchers to collect university, department and sex information of the participants.

Student teacher concern scale (STCS). The scale was developed in this study. It contained 23 items with two factors, which were called class management and concern of being evaluated. The scale was a 5-point Likert-type scale ranged from 1 to 5 (1=never; 2=rarely; 3=sometimes; 4= often and 5=always). Numbers of the the scale range from 19 to 95. The higher scores indicated higher levels of tendency to concerns.

Development process of the STCS. In the development process of Student Teacher Concern Scale, literature involving concerns related to teaching profession was reviewed based on the knowledge gathered from this literature review, 98 (50 males, 48 females) student teachers from different departments of Faculty of Education of Gazi University, were asked open-ended questions about their concerns in relation to practice teaching, and their responses were obtained in written format (e.g. what are your concerns about classroom management?) An item pool was prepared according

to those responses. Peer reviews of three faculty members of Curriculum and Instruction Department and three faculty members of Psychological Counseling and Guidance Department were made. Then, common comments were selected and a draft of 23-item form obtained from the item pool was created. Six experts from Counseling and Curriculum Department of Gazi University reviewed the draft. The draft administered to the students from three universities (n=681).

Procedure

The items of the scale were generated based on interviews with 98 student teachers (50 males, 48 females) from different departments of Education Faculty of Gazi University. The draft was administered to student teachers from three universities (n=681) in Ankara in 2011-2012 academic year. Permission was obtained from the ethics committees of the universities. Participants were asked to complete the scale in the classes. The scale was administered to students who participated voluntarily. The scale was administered by the researchers. The scale was completed in 15 minutes. The required instructions were given in advance to better inform and motivate them to complete the scale in appropriate and timely manner.

Data analysis

Construct validity of the scale was examined using exploratory and confirmatory factor analysis, and evidence for construct validity was explored via convergent and discriminant validities (Hair et al., 2010). Reliability of the measurement was tested using Cronbach's alpha, stratified, and composite alpha methods. In the first stage of analysis, observations in the data set were divided into two parts randomly, and principal component and exploratory factor analyses were run for the first data set (n=338), whereas a confirmatory factor analysis was conducted for the second data set (n=343) (Tabachnick & Fidell, 2013).

For the first study, outlier check, multicollinearity, linearity, and normality assumptions were examined (Hair et al., 2010; Kline, 2010; Tabachnick & Fidell, 2013). There was no multicollinearity and it was seen that removing the univariate and multivariate outlier cases orperforming appropriate transformations for the variables having skewness (range from -1.964 to 1.347; p=.00) or kurtosis (range from -1.55 to 4.75; p=.00) did not make any substantial change in the structure extracted from the raw data. After reversed–scored items were transformed, analyses were conducted on those raw scores. For the analyses, Factor 8.1 and SPSS 21 packages software were utilized for EFA and lisrel 880 was used for CFA. Along with the methods of minimum rank factor analysis for extracted dimensions; size of eigenvalues, screeplot, parallel analysis, MAP test and average eigenvalue approaches were utilizedfor determining the number of factors while performing principal component analysis on polychoric correlations(Lorenzo-Seva & Ferrando, 2013). Since the correlations between the factors were lower than .30, varimax rotation method was used. The items loaded on a factor with the value of higher than .30 remained in the final form. In addition, cross-loaded items with minor weight differences (lower than .20) were removed (Hair, Black, Babin& Anderson, 2010).

Tabachnick and Fidell (2007) stated that for an exploratory factor analysis to be run, a sample comprised of at least 300 observations was needed. On the other hand,

MacCallum, Wideman, Zhang, and Hong (1999) asserted that determining any common criteria for sample size was useless. According to MacCallum et al. (1999), even a sample size of 100 participants would be adequate for factor analysis, when all of the factors in a model explain higher than .60 communality variance of each of the items, and the factor loadings are higher than .80 for each of the items. They suggested, however, when the communalities were at lower levels (>.40), a higher number of factors existed, and there were only a few items per factor, then even a sample of 500 participants would not be adequate.

Similarly, De Winter, Dodou and Wieringa (2009) concluded that with the help of estimating a proportion of sample size or the number of participants with the number of items was no longer needed, the sample size can vary according to communalities, factor loadings, the number of items in each of the factors, and the number of factors in the model.

Stevens asserted that the sample size is not the critical issue for a reliable factor having at least 3 items with the loadings of at least .80, or at least 4 items with the loadings around .60. In the case of a factor having at least 10 items with the loadings of around .40, the sample size could be ≥150; for the factors having only few loadings, it should be ≥300. In this study, the communalities ranged between .16 - .59 (*M*=.35). As seen above, there are many opinions about to determination of the factor number and the size of factor loadings. Performing a synthesis of the views, it is accepted that the loading sat own factor to be more than.40. Besides, considering other criteria, a sample size of 338 participants would be seen as adequate.

In structural models, sample size with 200 participants was acceptable, but it was reported that the sample size should be ten times higher than number of parameters (Kline, 2010). Hypothesis model involved 39 free parameters. In this case, 39*10=390 participants were needed. However, there has been an argument on sample size for confirmatory factor analysis, as there was on exploratory factor analysis. Therefore, a power analysis using a SAS syntax written by MacCallum, Browne, and Sugawara (1996) was performed to determine the sample size for confirmatory factor analysis. When conducting the power analysis, a power value of .80, and the following values were taken as reference: RMSEA .00 - .03, alpha level=.05, df=151, and group=1. Based on those reference values, the sample size was calculated as 359 participants. Along with this calculation, assumptions of confirmatory factor analysis were checked prior to running the analysis, as was the case in the exploratory factor analysis.

Results

In this section, findings of exploratory, confirmatory factor analyses, and internal consistency of STCS were given.

Validity and Reliability Study

Principal component analysis (PCA) revealed seven components with the eigenvalues higher than 1.00. Half of the eigenvalues obtained from 23-item data set was calculated as 6.88. This approach indicated a removal of two components (5.10 and 3.04) from the scale was needed. In addition, results of scree plot (as seen Figure

1), MAP test and parallel analyses showed that these two components were statistically significant.

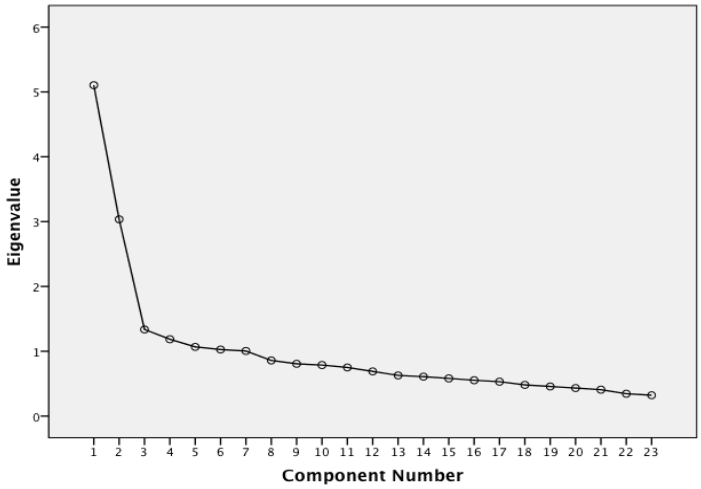


Figure 1: Scree plot

PCA's KMO was found to .85; Barlett's Test of Sphericity (χ^2_{253}) was 1773.00, p= .00. In the light of these findings, an exploratory factor analysis (EFA) was performed for a two-factor structure. Findings revealed that two factors explained 35.11% of total variance (sum of eigenvalues=8.08). In addition, it was seen that item-factor relationships did not vary based on using different rotations and factor extraction methods. Factor analysis results are given in Table 1 in which minimum rank factor extraction and varimax rotation methods were used.

Table 1

STCS' Factor Loadings with Varimax Rotation and Item – Dimensions Correlations

	ITEMS	*I-T Cor.***	*F1*	*F2*
1.	I get irritated when I can't find adequate amount of resources related to topic.			
2.	I don't have any concerns about class management.*	.59	.68	
3.	I worry about giving insufficient answers to the questions of students.	.52	.62	
4.	I know how to deal with unexpected cases.*	.60	.68	
5.	I believe that I can give lectures in an effective and amusing way.*	.46	.59	
6.	I worry about the thought that I fail to establish effective communication with the students.	.47	.58	
7.	I don't have any concerns about finding methods and techniques appropriate for the topic.*	.42	.51	

Table 1 comtinue…

ITEMS	I-T Cor.**	F1	F2
8. I fear that I cannot keep the attention of the students.	.69	.74	
9. I am concerned about how to deal with the problematic students.	.56	.63	
10. I am concerned about using Turkish in a correct way.			
11. I have some concerns about whether my physical appearance is appropriate for teaching.			
12. I get upset when I cannot motivate the students about the lesson.	.41		.59
13. I experience the fear of not being able to use body language effectively.	.53	.64	
14. I feel tension because of being overexcited.	.44	.52	
15. I am negatively affected by students' lower levels of readiness.			
16. I am positively affected if the students are respectful to me. *	.34		.51
17. I am concerned about my practice supervisor's negative evaluation of my performance.	.45	.56	
18. I feel offended if my practice supervisor is uninterested and distant from me.	.43		.54
19. I feel offended if my practice supervisor criticizes me in front of the students.	.54		.65
20. I get motivated if my teaching supervisor is respectful to me and regards me as a colleague*	.54		.67
21. I feel discomfort when a faculty member finds my performance inadequate.	.38		.50
22. I feel discomfort if the faculty member acts strictly and intolerantly to me.	.64		.75
23. I feel offended if the faculty member does not make an objective evaluation.	.52		.67
Total variance explained (%)	20.44	14.67	

* Reversely scored items ** Item - Dimension (Total) Correlations

As it was seen in Table 1, items in the first factor had factor loadings from .56to .74. In the second factor, factor loadings were between .50 and .75. Based on the contents of the items loaded on the factors, the first factor was called as "Class management" and the second factor was named as "Concern about being evaluated". In addition, items 1, 10, 11, and 15 were excluded from the data set because of their lower levels of factor loadings (<.40). Following the exclusion of those items, exploratory factor analysis was performed again. The first factor explained variance increased to 23.16%, and the secondfactor explained rose to 17,29% of the total variance (total=40.45%). Item-total correlations for the first factor were between .42 and .69; for the second factor they were between .34-.64. Internal

consistencies of the factors (Cronbach's alpha) were .84and .77respectively. Stratified alpha was found to be .84using the equation below:

$$Stratfied\ \alpha = 1 - \frac{\Sigma \sigma_{xj}^2 (1-\alpha_j)}{\sigma_x^2}$$

$$- \frac{46.08(1-.84)+24.48(1-.77)}{82.55}$$

In the second stage of the analysis, a confirmatory factor analysis was conducted on the second half of the data set to examine how well the two-factor structure explains the relationships among data gathered for the second half of the data set. Results are presented in Figure 2. As seen in the Figure 2, standardized weights of items in the class management dimension were between .74and .93, whereas the standardized weights in the evaluation dimension were between .63and .91. Goodness of fit indices for the model was found to be acceptable: (x^2_{151} =724.02; *p*=.00; Normed x^2 = 4.79; CFI=.88; GFI=.94; AGFI= .92; RMSEA=.11and GA=.10-.11). In the first dimension, item total correlations were between .45 and .68; those correlations were between .41and .62for the second dimension. Cronbach's alpha for the first dimension was .85, Cronbach's alpha for the second dimension was found to

$$CR = \frac{(\Sigma_{i=1}^{n} \lambda_i)^2}{(\Sigma_{i=1}^{n} \lambda_i)^2 + (\Sigma_{i=1}^{n} \delta_i)}$$

be .79.. Raykov and Shrout (2002) stated that when only the error terms were uncorrelated and factor loading were equal (tau equation) in the model, internal consistency could calculate the reliability correctly. In the other cases, estimations made using this method could reveal results higher or lower than the actual results (Hair, Black, Babin& Anderson, 2010). For this reason, reliability coefficients for subdimensions and for the overall scale were calculated separately.

(CR= reliability, λ_i = i. standardized item weight and δ_i = i. error term of item)

With the help of the equation above, t reliability coefficients were found to be .95 for class management, .92 for concern of being evaluated, and .91 for the overall scale.

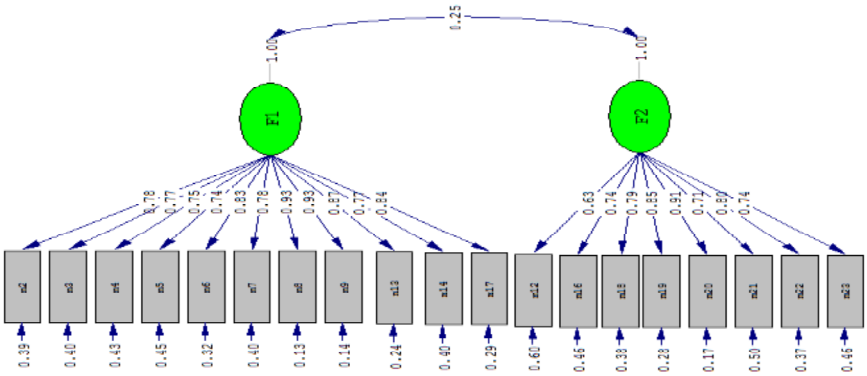


Figure 2. Confirmatory factor analysis (Standardized weights)

Furthermore, the average variance explained (AVE) was found to be .67 for class management (F1), and .60 for being evaluated with the help of the equation below:

$$AVE = \frac{\sum_{i=1}^{n} \lambda_i^2}{n}$$

According to these results, in addition to goodness of fit indices, having standardized weights higher than .50, calculating .90and higher values of reliability coefficients, having reliability coefficients bigger than AVE indicated that the model had an acceptable convergent validity.

Square of coefficient between two dimensions were compared with the explained mean variances of the dimensions to calculate the discriminant validity of STCS: The correlation between two dimensions was .25, so $.25^2$ is .06. The mean variances explained by the two dimensions were .67and .60respectively. These coefficients were considerably higher than the squared correlation of dimensions. Moreover, since the confidence interval for .25(CI=.25± 1.96*.03) were between .19and .31; and it did not cover "1". It can be concluded that the scale did not have a one-factor structure.

These results indicated that the scale has discriminant validity. In other words, the items had stronger relationships with the existing structure rather than with other potential structures. Moreover, when dividing the coefficient between two dimensions to its standard error, a value of t=8.33, p<.01 was found. This means that the relationship between the dimensions was low but statistically significant. When the items were examined in terms of their contents, a significant relationship between the dimensions was expected, which means nomologic validity was met. Therefore, evidence for convergent and discriminant validities indicates the presence of construct validity.

Discussion and Conclusions

The purpose of the present study was to develop a measure describing student teacher's concerns about practice teaching process. Firstly, an item pool was constituted, then some amendments on the items were performed based on the peer reviews, and a form for pilot study was acquired.

Factor structure (exploratory factor analysis) of the scale was determined, construct validity was tested, and the reliability was calculated. Results of the exploratory factor analysis extracted two-factor solution: (1) class management, and (2) being evaluated. The class management dimension had 11 items, while 8 items were loaded in the dimension of being evaluated. Both validity and reliability coefficients were at acceptable levels.

Class management was one the most frequent concerns reported by student teachers. A great amount of research has supported this finding (Fuller & Bown, 1975 ; Moore & Cooper, 1984; Hart, 1987; Maynard & Furlong, 1993; Jones & Vesilind, 1995; Capel, 2001; Hsu, 2005; Moore, 2003; Poulou, 2007). Cakmak (2008), Boz (2008), and Tok's studies conducted among Turkish student teachers indicated that behavior management skills, motivating the students, and establishing communication were the most frequent class management-related problems that student teachers experienced.

One of the other concerns that student teachers frequently have was being evaluated by faculty member and supervising teacher. Similar findings in the previous research support this finding (MacDonald, 1993; Capel, 1997, 1998, 2001; Fives, Hamman & Olivarez, 2007; Paker, 2011).

Student teachers' roles both as teachers and students, regulations like professional tasks established by the teachers, the obligation to comply with the decisions previously made, and being under limited control in the educational settings, made the student teachers experience burnout, especially during the practice teaching period. In this case, supervisors' task is critical according to Fives, Hamman, and Olivarez (2007). McDonald (1993) stated that inconsistent evaluations, expectations and feedback of teaching supervisors can create overstress on student teachers.

In order for student teachers to be self-confident, their concerns are needed to be determined. To help them decrease their concerns, they need to be supported in dealing with crowded classrooms and strict curriculum structure. Determining the concerns of student teachers might help in the development of better teacher education programs. Teacher educators should determine pre-service teachers' concerns and support strategies that can help deal with those concerns. Moreover, a sharing atmosphere can be established to show student teachers that other student teachers and even professional teachers can have similar concerns.

In this study, measures in the literature having different subdimensions related to concerns of the student teachers were examined, and a detailed, reliable, and useful new scale was developed. This student teacher concerns scale involved only concerns

during the practice teaching period. This scale is thought to be utilized in determining the difficulties student teachers have in practice teaching, in improving the teacher education programs, and in helping supervisors and related researchers. Future, more detailed, studies might focus on the improvement of the measurement of student teacher concerns.

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Öğretmen Adayı Kaygı Ölçeğinin Geliştirilmesi

Atıf:

Alpan, B.G., Özer, A., Erdamar, K.G. & Subaşı, G. (2014). The Development of a Student Teacher Concerns Scale. *Eurasian Journal of Educational Research,* 54, 151-170.

Özet

Problem Durumu: Öğretmen adayı özelliklerini bilişsel ve duyuşsal giriş davranışları oluşturmaktadır. Bilişsel giriş davranışları alanıyla ilgili ön öğrenmeleri içerirken, duyuşsal giriş davranışları ise genel ve akademik benlik tasarımını, başarıya olan inancı, ilgilerini ve tutumlarını içermektedir. Öğretmenlik uygulaması, öğretmen adayının öğretim becerilerini kazanması ve geliştirmesinde etkin rol oynar. Öğretmenlik uygulamasında öğretmen adayları bazı kaygılar yaşamaktadırlar. Öğretmen adayı kaygıları, başta öğretmen adayı özellikleri olmak üzere öğretim hizmetinin niteliği, öğrenme ürünleri gibi eğitim programını oluşturan diğer içsel ve dışsal koşulları etkilemektedir. Öğretmen adayları, sınıf yönetimi, uygun yöntem-teknik kullanma ve materyal seçme ve hazırlama, öğrencilerle iletişim, uygulama öğretmenlerinin ve öğretim üyelerinin performanslarını gözlemliyor ve değerlendiriyor olması gibi nedenlerden dolayı kaygı duymaktadırlar. Türkiye'de yapılan araştırmalara bakıldığında, öğretmen veya öğretmen adayı kaygılarına ilişkin özgün bir ölçek çalışması ile karşılaşılmamıştır. Yapılan çalışmalar, araştırmalara özgü hazırlanmış anketler ve mevcut ölçeklerin uyarlanmasıdır. Bu yüzden yerel uygulamaları kapsayan bir öğretmen adayı kaygı ölçeğinin geliştirilmesine gereksinim duyulmuştur.

Araştırmanın Amacı: Öğretmen adaylarının öğretmenlik uygulaması sürecinde yaşadıkları kaygıların ve düzeylerinin belirlenmesine yönelik özgün bir ölçek geliştirmektir.

Araştırmanın Yöntemi: Öğretmen Adayları Kaygı Ölçeğinin geliştirildiği bu araştırmada, önce Gazi Üniversitesi Eğitim Fakültesinin farklı bölümlerinde, 2011-2012 eğitim ve öğretim yılında öğrenime devam eden 98 öğretmen adayından (50 erkek, 48 kadın) elde edilen görüşler ve literatür taraması sonucunda 40 maddelik bir havuz oluşturulmuştur. Bu havuz 6 uzmanın incelemeleri sonucunda 23 maddeye indirilmiş, daha sonra 23 maddelik form Ankara ilindeki 3 üniversitede 2011-2012 eğitim ve öğretim yılında öğrenimlerine devam eden toplam 681 öğretmen adayına (% 63.3'ü (423) kadın, % 36.7'si (258) erkek) uygulanmıştır. Öğretmen adaylarının yaşları 19 ile 39 arasındadır (Ortanca=22). Formdan elde edilen ölçümler önce rastgele ikiye bölünmüş, veri setinin ilk parçasında betimleyici; ikinci setinde doğrulayıcı faktör analizi yapılarak ölçümlerin yapı geçerliği araştırılmıştır. Ayrıca her iki veri setinde ölçümlerin güvenirlikleri de Cronbach ve tabakalı alfa, yapı güvenirlik katsayılarıyla araştırılmıştır.

Bulgular ve Sonuçlar: Bu çalışmada öğretmen adayının öğretmenlik uygulaması sürecinde yaşadığı kaygıları betimlemeye yönelik bir ölçeğin geliştirilmesi amaçlanmıştır. Öncelikle öğretmen adayı kaygı ölçeği madde havuzu oluşturulmuş, daha sonra uzman görüşlerine dayalı olarak maddelerde gerekli düzeltmeler yapılarak, ön uygulamaya hazır hale getirilmiştir. Ölçeğin faktör yapısının belirlenmesi, yapı geçerliğinin test edilmesi ve güvenirlik çalışmalarının yapılması işlemleri gerçekleştirilmiştir. Betimleyici faktör analizi sonucunda ölçeğin iki faktörden oluştuğu görülmüştür. Bu faktörlere; (1) Sınıf Yönetimi, (2) Değerlendirilme adı verilmiştir. Sınıf yönetimi 11; değerlendirilme boyutu 8 maddeden oluşmaktadır. Birinci boyutta yer alan maddelerin faktör yükleri .56 ile.74; ikinci boyutta yer alan maddelerin faktör yükleri ise .50 ile .75 aralığındadır. Buna ek olarak 1, 10, 11 ve 15. maddeler düşük faktör yüklerine (<.40) sahip olduklarından veri setinden çıkarılmışlardır. Düşük yüke sahip maddeler veri setinden çıkarıldıktan sonra betimleyici faktör analizi tekrarlanmış, açıklanan varyansın ilk boyutta % 23.16'ya, ikinci boyutta ise % 17.29'a yükseldiği saptanmıştır (Toplam % 40.45). İlk boyutun madde toplam korelasyonları .42 ile .69; ikinci boyutun .34 ile .64 arasındadır. Boyutların iç tutarlık katsayıları (Cronbach alfa) sırasıyla .84 ve .77'dir. İki boyutun bileşiminden elde edilen tabakalı alfa katsayısı .84'tür. Analiz sürecinin ikinci aşamasında, iki boyutlu yapının, araştırma örnekleminin diğer parçasından elde edilen veriler arasındaki ilişkileri ne ölçüde açıkladığını incelemek amacıyla doğrulayıcı faktör analizi yapılmıştır.

Sınıf yönetimi boyutunda yer alan maddelerin standartlaştırılmış ağırlıkları .74-.93; değerlendirme boyutunda yer alan maddelerin ağırlıkları ise .63-.91 aralığındadır. Modele ilişkin genel uyum katsayıları yeterli düzeydedir. İlk boyutta madde toplam korelasyonları .45-.68; ikinci boyutta .41-.62 arasındadır. İlk boyutun iç tutarlık katsayısı .85 iken; ikinci boyutun 79'dur. Yapı güvenirlik katsayısı sırasıyla.92 ve .91'dir. Bu sonuçlara göre, kabul edilebilir düzeyde genel uyum ek olarak, standartlaştırılmış ağırlıkların (12 ve 21. maddeler dışında) .50'den, güvenirlik

katsayılarının (CR) .70'den büyük olmaları, CR'lerin AVE'lerden büyük olmaları modelin benzeme geçerliğinin varlığına işaret ederken; boyutların açıkladıkları ortalama varyansın .50'den küçük olması, maddelerdeki hata varyansının faktör tarafından açıklanan varyanstan daha büyük olduğu anlamına gelmektedir. Ayrıca iki boyut arasındaki ilişki katsayısı (r= .25), standart hatasına (.03) bölündüğünde, t=8.33, p<.01 değeri elde edilmektedir. Bu değer, boyutlar arasındaki ilişkinin düşük fakat istatistiksel bakımdan önemli olduğunu göstermektedir. Maddeler içerik açısından incelendiğinde, boyutlar arasında anlamlı bir ilişkinin olması beklenen bir durumdur. Sonuç olarak, benzeme ve ayırma geçerliklerine ilişkin kanıtlar, ölçeğin yapı geçerliğinin varlığını işaret etmektedir.

Sınıf yönetimi, öğretmen adayı kaygıları arasında sıklıkla yer almaktadır. Birçok araştırma ÖAKÖ'nün sonucunu desteklemektedir. Öğretmenlik uygulaması sürecinde öğretim elemanı ve uygulama öğretmeni tarafından değerlendirilme kaygısı öğretmen adayının yüksek oranda yaşadığı kaygılardan bir diğeridir.

Bu çalışmada, literatürdeki çeşitli alt boyutlardan oluşan öğretmen adayı kaygı ölçekleri incelenerek; güvenilir, kullanışlı ve yeni bir ölçek geliştirilmeye çalışılmıştır. Öğretmen adayı kaygı ölçeği öğretmenlik uygulaması süreciyle sınırlandırılmıştır. Bu ölçeğin öğretmen adaylarının öğretmenlik uygulamasında yaşadıkları güçlüklerin belirlenmesinde ve öğretmenlik uygulaması sürecindeki eksiklerin giderilmesinde, öğretmen yetiştiren kurumların programlarının geliştirilmesinde; öğretmenlik uygulamasının yapıldığı ilköğretim - orta öğretimde - üniversitede görevli öğretmenlere-öğretim elemanlarına ve konuyla ilgili araştırmacılara yol göstereceği düşünülmektedir

Öneriler: Öğretmen eğitimcileri öğretmen adaylarının kaygılarını belirlemeli ve adayların bu kaygılarla başa çıkmasını sağlayıcı stratejileri kazanmalarını desteklenmelidir. Ayrıca adayların kaygılarını paylaşmaları sağlanarak, diğer adayların ve hatta öğretmenlerin de benzer kaygılar yaşadıklarını görmeleri, kaygıların azalmasına yardımcı olabilir.

Anahtar Sözcükler: Öğretmenlik uygulamasında kaygı, öğretmenlik Uygulaması, öğretmen adayı kaygı ölçeği