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Development of a scale for evaluating the pedagogical formation program implemented with Turkish prospective teachers

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The current study aims to develop a scale to evaluate the Pedagogical Formation Program implemented at a Turkish state university. Participants were 221 prospective teachers enrolled in the Pedagogical Formation Program in the 2010-2011 academic year. Exploratory factor analysis (EFA) was conducted on the scale items which revealed four factors sheltering 26 items. The scale was administered again to 215 participants at the end of the 2011-2012 academic year to validate the proposed structure through a confirmatory factor analysis (CFA). Findings revealed a 25-item structure, which confirmed the proposed factor solution. Implications and suggestions for further research were provided in accordance with the recent literature.

Key words: Program evaluation, pedagogical formation, scale development, Prospective teachers

INTRODUCTION

Different policies have been developed and implemented to train field teachers at the primary and secondary school levels in Turkey to meet the educational demands of the growing population. For instance, there have been attempts to eliminate the need for teachers as quickly as possible which led to unique administrations such as “correspondence course”, “substitute teacher”, “accelerated education” and “Pedagogical Formation” in different periods. Out of these administrations, the Pedagogical Formation Program -founded in the 1970s- continued in different periods to meet the teacher needs until it was abolished in the 1998-1999 academic year by the Council of Higher Education (Akyüz, 2004). The program has been resumed for some programs in 2001, but fully resumed in the 2010-2011 academic year where the graduates of the Faculty of Arts and Sciences were given priority. It is expected that prospective teachers acquire fundamental field and culture knowledge in the departments they graduated from. On the other hand, basic teaching skills are practiced and gained through specifically tailored teaching profession courses (Küçükahmet, 2007). The 2010-2011 program, which also included the 3rd and 4th grade students from relevant departments, has been continued only for graduates in the following years. The contents and standards for the program were determined by the Council of Higher Education, and universities were asked to form and provide the content of the courses in accordance with

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Table 1. Courses of pedagogical formation program.

Semester	Course name	ECTS credits
Fall	Introduction to Education	2
Fall	Developmental Psychology	2
Fall	Theories and Approaches in Teaching and Learning	2
Fall	Instructional Technologies and Material Design	3
Fall	Methodology in the Area of Specialization	4
Spring	Curriculum Development and Instruction	2
Spring	Measurement and Evaluation in Education	2
Spring	Guidance	2
Spring	Classroom Management	2
Spring	Teaching Practice	5
Total		26

these standards. The program lasts for one academic year. Students in the program can take their teaching certificates upon successful completion of 26 credits covered in 10 courses. The courses and their credits are illustrated in Table 1.

To sustain a quality education system, it is important to train teachers well both prior to the service as well as in the service (Şahin, 2007). Through the Pedagogical Formation Program, it is aimed to develop prospective teachers' teaching knowledge and skills prior to the teaching profession. Thus, the nature and the quality of the program carry utmost importance.

Evaluation of education programs is in a sense decision-making process of the effectiveness of the program (Demirel, 2005). Stufflebeam (1971) defines evaluation as obtaining useful and beneficial information for judging alternative decisions and limiting it. Evaluation of education programs is of great importance for understanding the function of education programs on the target audience and thus increasing the effectiveness of education programs.

Evaluation critiques previous documents, plans, and actions (Ornstein and Hunkins, 2009). Since evaluation results aim to reconsider "documents, plans and actions", complete their deficiencies and eliminate their shortcomings, evaluation of education programs basically means the evaluation of teaching (Demirel, 2005).

A variety of evaluation models are used in the evaluation of education programs. Among these there are objectives-oriented evaluation, management-oriented evaluation, consumer-oriented evaluation, expertise-oriented evaluation and participant-oriented evaluation models (Fitzpatrick et al., 2004). It is very important that evaluation within the scope of each model should be made via valid and reliable assessment-evaluation tools. Therefore in the current study, the nature and quality of the program are addressed through the opinions of prospective teachers enrolled in the program. First, an objective-oriented program evaluation scale was developed and administered to the participants of the program. Then, the emerging scale was confirmed with a subsequent administration.

Study I: Exploratory Factor Analysis (EFA)

Participants

The participants of the study were students who registered in the pedagogical formation program of a Turkish state university in spring 2011. 320 students, who enrolled in the program, were told about the research and asked to participate in the research on a voluntary basis. They were told that they would be asked to fill in a program evaluation instrument and no personal information would be revealed. 250 students volunteered to participate in the research and the data collection tool was administered to 250 voluntary students out of 320 registered students.

Since 29 of the responses were considered invalid (e.g., empty, monotonous responding), responses of 221 students were analyzed. Of all valid responses, 175 (79.2%) were females and 46 (20.8%) were males. Different colleges were represented in the sample: Humanities (108; 48.9%), arts and sciences (30; 13.6%), conservatory (22; 10%), physical education (22; 10%), medicine (10; 4.5%), fine arts (9; 4.1%), administration (6; 2.7%), communication (3; 1.4 %), theology (2; 0.9%) and engineering (1; 0.5%). Eight students (3.6%) did not state their departments.

Data collection tool

In order to develop the scale to evaluate the current pedagogical formation program, an item pool was generated which addressed the general aims of the program, course objectives and contents. That is, all formal documents involving the pedagogical formation program were collected and analyzed. However, the

analysis revealed that formal documents did not include sufficient details regarding the basic educational steps of the program such as aims, content, instructional processes, and measurement and evaluation. Thus, the item pool was extended through the review of relevant literature on teaching competencies, program evaluation and scale development. These endeavors led to a 60-item data collection tool. Items were generated as Likert type ranging from strongly disagree (1) through strongly agree (4).

The item pool was examined by three field experts who have PhD in Curriculum and Instruction. They eliminated the items addressing similar constructs, modified complex items and corrected ambiguous ones. They further added new items to address areas neglected by the researcher. After a consensus has been reached by the three experts, the final form included 40 items for piloting.

Procedure

To include as much diversity as possible, no limitations have been set while determining the sample size. The data collection was realized towards the end of the academic years. On the other hand, since students would be stressful during the final exams, data were collected a few weeks before the final exams. A total of 250 students responded voluntarily and handed in the questionnaires where 29 responses were omitted because of invalid responding (e.g., empty pages, monotonous responding). Therefore, responses of 221 students were analyzed.

RESULTS

The Cronbach Alpha of the 40-item data collection tool for the current 221 participants were 0.961.The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was checked to see the adequacy of the current sample for factor analysis, which was 0.935. The KMO value should be higher than 0.60 to factorize the test items (Büyüköztürk, 2010). Thus, the current KMO value showed that the sample was good for factor analysis. Different sample size values are accepted in the literature. Comrey and Lee (1992) have stated that 200 people are sufficient in middle level.

Whether the data come from multivariate normal distribution was tested through the Bartlett Test of Spherity (BTS). This test examines whether there is a relationship among the investigated variables on the basis of partial correlation (Büyüköztürk, 2010). BTS results showed that the p value vas below 0.001 which revealed that the factors can be extracted effectively.

The scree plot and the explained variance revealed that the items were loaded on four factors. The factor structure of the scales is as good as the degree of variance explained (Gorsuch, 1972; Lee and Comrey, 1979; cited in Tavşancıl, 2006). Although total explained variance values above 30% can be acceptable for single-factor structures, the value must be higher in multi-factor scales (Büyüköztürk, 2010). For instance, explained variance values between 40% through 60% are considered acceptable in social sciences where each factor eigenvalue should be greater than 1 (Scherer et al., 1988; cited in Tavşancıl, 2006). The current EFA revealed that the variance explained by four factors was 58% which was acceptable.

After extracting the four-factor structure, the factor loadings of each item in the scale were examined and complex items were checked. Having a factor loading of 0.45 or above is considered good, but in practice this value could be as low as 0.30 for some items (Büyüköztürk, 2010). Thus, the acceptable factor loading cut-off was considered as 0.45. Similarly, the complexity of the factor loadings was investigated. That is, items with high and very close loadings under two different factors were considered complex (Akbulut, 2010) and these were removed from the scale structure. These analyses led the researcher to exclude 14 items from the scale. The final form involved 26 Likert-items under four factors which explained 58% of total variance.

The factors can be exposed to a factor rotation in order to provide independence, interpretation and comprehensibility (Brown, 2006; cited in Çokluk et al., 2010). Thus, for a better definition and evaluation, current factors were exposed to a rotation process. Considering that current factors were not correlated with each other, a Varimax rotation was realized.

Four factors were labeled after the rotation as illustrated in Table 2. The internal consistency coefficients for each factor were good. The alpha values were 0.898 for the first factor (Evaluation of
the overall objectives of the program), 0.884 for the second factor (Evaluation of the teaching-learning processes), 0.822 for the third factor (Evaluation of the measurement and evaluation process) and 0.741 for the last factor (Evaluation of the pedagogical formation course contents).

Moreover, whether there was a significant difference between women and men's views was analyzed. When the kurtosis and skewness values and normality test results were analyzed according to gender for each factor, it was found out that the four factors did not meet normal distribution conditions. For that reason, to learn whether there is a significant difference between participants' views for all factors Mann-Whitney U test, a non-parametric test, was utilized. As a result of the analysis, a significant difference could not be found between men and women for all factors (f1: p=.10>.05; f2: p=.28>.05; f3: p=.75>.05; f4: p=.76>.05).

Table 2. Scale factors and items.

Program Evaluation Scale (PEs)	Mean	Standard Deviation	Item-total correlation	Factor loading
Evaluation of the overall objectives of the program (α=0.898)				
5. This program contributed to my individual and professional development and empowered related planning competencies.	3.14	0.66	0.717	.742
7. This program helped me gain the knowledge and application skills regarding the educational programs of the field I will teach in.	2.84	0.87	0.673	.736
6. This program helped me gain the ability to adapt the teaching-learning process to the characteristics of students.	3.00	0.70	0.737	.726
4. This program helped me gain the knowledge and application skills regarding the educational programs of the special field I will teach in.	2.97	0.83	0,673	.715
1. This program helped me gain the ability to direct the students' behavior and the teaching process.	3.14	0.65	0.711	.644
2. This program helped me acquire the communication skills and benefit from the teaching-learning environment.	3.18	0.65	0.737	.625
3. This program helped me acquire the ability to develop and evaluate educational programs.	3.04	0.67	0.632	.621
10. This program helped me gain the ability to evaluate the effectiveness of instruction and students' development.	3.12	0.59	0.614	.609
9. This program helped me gain the knowledge of use instructional technologies and materials effectively in educational environments.	3.08	0.73	0.522	.464
Evaluation of the teaching-learning processes (α=0.884)				
19. Out-of-class activities were organized to supplement the course contents.	2.32	0.78	0.677	.686
21. Evaluations were made to determine the background knowledge of students before the courses.	2.39	0.83	0.712	.676
14. Instruction was diversified considering the individual differences in the courses.	2.36	0.89	0.626	.673
29. The deficiencies in learning were determined and the related feedback was provided	2.52	0.81	0.695	.663
22. Students' needs and interests in their own field of teaching profession were considered during the pedagogical formation courses.	2.42	0.87	0.671	.633
38. Course contents were structured in accordance with the students' interest and needs.	2.51	0.80	0.701	.599
20. Course contents were associated with the students' background knowledge, life experiences, and learning goals.	2.72	0.72	0.641	.573
Evaluation of the measurement and evaluation process (α=0.822)				
32. The measurement tools could measure the metacognitive skills effectively.	2.57	0.82	0.726	.713
34. The measurement tools covered all the subjects taught in the courses.	2.71	0.76	0.592	.644
36. The evaluation results were used to develop the current instruction.	2.76	0.70	0.548	.640
40. Information was obtained from multiple sources to evaluate learning.	2.74	0.81	0.579	.620
23. The measurement tools could measure the students' knowledge and skills effectively.	2.58	0.78	0.634	,584
Evaluation of the pedagogical formation course contents (α=0.741)				
16. Articles, books and similar materials were shared with the students to supplement the course content.	2.79	0.69	0.411	.661
18. Course contents covered recent developments in the field.	2.81	0.70	0.521	.600
26. We were informed about the objectives of the courses.	3.01	0.69	0.490	.526
12. Course contents were organized in a way to help students understand the subject.	3.00	0.69	0.518	.497
28. The subjects of the lessons were taught in accordance with the course objectives.	2.96	0.70	0.577	.477

Table 3. Distribution of gender.

Gender	Female	Male	Total
Exploratory Factor Analysis	175 (79%)	46 (21%)	221 (100%)
Confirmatory Factor Analysis	156 (73%)	59 (27%)	215 (100%)
Total	331 (76%)	105 (24%)	436 (100%)

Study II: Confirmatory factor analysis (CFA)

A second study was conducted to confirm the four-factor structure proposed through the EFA. That is, the 26-item scale with four factors was administered to a similar population and exposed to a CFA through LISREL.

Participants

The participants of the second study were students who registered in the pedagogical formation program of the same Turkish state university in spring 2012. The data were collected from 215 voluntary students. Of all respondents, 156 were females (72.6%) and 59 were males (27.4%). The distribution of the participants' genres across EFA is seen in Table 3.

As it is seen in the table, gender distributions are almost equal both in exploratory and confirmatory factor analysis. This situation reveals the fact that teacher formation education program comprises women mostly.

The distribution of the participants across colleges were as follows: Humanities (55; 25.6%), arts and sciences (50; 23.3%), fine arts (35; 16.3%), conservatory (14; 6.5%), physical education (13; 6%), administration (12; 5.6%), tourism (10; 4.7%), medicine (7; 3.3%), communication (4; 1.9%), theology (2; 0.9%), engineering (2; 0.9%). Eleven students (5.1%) did not state their departments.

In the literature, there are different values for sample size. Comrey and Lee (1992) state that 200 participants will be sufficient in middle level. Furthermore, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was checked to see the adequacy of the current sample for factor analysis, which was 0.914. The KMO value should be higher than 0.60 to factorize the test items (Büyüköztürk, 2010). Thus, the current KMO value showed that the sample was good for factor analysis. Whether the data come from multivariate normal distribution was tested through the Bartlett Test of Spherity (BTS). BTS results showed that the p value was below 0.000 which revealed that the factors can be extracted effectively.

Procedure

Similar to the first study the data collection was realized towards the end of the academic year. The data collection was realized exactly one year after the first study with 240 new students who responded voluntarily and handed in the questionnaires. Of all scales, 25 cases were omitted because of invalid responding (e.g., empty pages, monotonous responding). Therefore, responses of 215 students were analyzed.

Results

The internal consistency coefficient of the 26-item scale which was administered to 215 students was 0.93. The factor structure obtained from the EFA was tested with a CFA. According to the suggested modifications, error covariance of item 7 *(This program helped me gain the knowledge and application skills regarding the educational programs of the special field I will teach in)* was related to items 2, 4, 10 and 22. Thus item 7 was excluded from the scale. Evaluation of the fit indices after the CFA is provided in Table 4. Some fit values are good even before the item 7 was removed from the scale. Thus, removal of the item was not mandatory according to more liberal resources.

Chi Square Goodness of Fit (χ^2) is not an index to be interpreted on its own. It is interpreted through calculating its ratio to the degree of freedom (Çokluk et al., 2010). According to Tabachnick and Fidel (2001), if the ratio is 2.00 or below, it refers to good fit (Akbulut et al., 2010). The ratio was 1.832 after the removal of item 7 which referred to a good fit.

According to Steiger (2007), if the Root Mean Square Error of Aproximation (RMSEA) is 0.07 or below, it refers to a good fit. The RMSEA was computed as 0.062 in the final measurement model which revealed that there was not any significant differences between the population and the current sample.

According to Brown (2006) and Hu and Bentler (1999), a Standardized Root Mean Square Residual (SRMSR) below 0.08 refers to good fit, which was acceptable both before and after the exclusion of item 7 in the current CFA.

According to Sümer (2000) and Tabachnick and Fidell (2001), if the Normed Fit Index (NFI) and Non-normed Fit Index (NNFI) values are 0.90 or above, the model can be considered acceptable (Akbulut et al., 2010). The NFI was somewhat weak (i.e., 0.81). However, the NNFI was 0.90 and suggested a good fit.

According to Schumacker and Lomax (1996), Hooper et al. (2008) and Sümer (2000), if the goodness of fit index (GFI) and the adjusted goodness of fit index (AGFI)

Table 4. Evaluation of the CFA.

Index	Good fit	Initial trial	After item 7 is deleted*	Rationale**
χ^2	$0 \leq \chi^2 \leq 2sd$	$\chi^2 = 614.97 > 586$	$\chi^2 = 492.76 < 538$	Yılmaz and Çelik (2009)
χ^2 /sd	≤ 2.00= goodness of fit	2.10	1.832	Tabachnick and Fidell (2001)
RMSEA	≤ 0.07= good fit	0.072	0.062	Steiger (2007)
SRMR	≤ 0.08= good fit	0.061	0.059	Brown (2006), Hu and Bentler (1999)
NFI	≥0.90= good fit	0.78	0.81	Sümer (2000); Tabachnick and Fidell (2001)
NNFI	≥0.90= good fit	0.87	0.90	Sümer (2000), Tabachnick and Fidell (2001)
CFI	≥0.90= good fit	0.88	0.91	Hu and Bentler (1999), Sümer (2000) and Thompson (2004)
GFI	≥0.90= good fit	0.82	0.84	Schumacker and Lomax (1996); Hooper et al. (2008) and Sümer (2000)
AGFI	≥0.90= good fit	0.78	0.81	Schumacker and Lomax (1996), Hooper et al. (2008) and Sümer (2000)

*Chi Square (χ^2): 492.76; degree of freedom: 269. **The resource list was derived from Çokluk et al. (2010) and Akbulut et al. (2010).

are 0.90 or above, the scale is said to have a good fit. The GFI and AGFI were computed as 0.84 and 0.81 respectively which revealed a weakness in the goodness of fit. In structural equation models, all fit indices are interpreted in conjunction with each other rather than relying on a single index (Cole, 1987; Jöreskog and Sörbom, 1993; Marsh and Hocevar, 1988). Thus, the model was considered acceptable since most fit indices were above the suggested cut-off limits. The internal consistency coefficients for all factors were computed which were good: 0.846 (factor 1), 0.833 (factor 2), 0.786 (factor 3) and 0.823 (factor 4) is provided in Table 5.

As in the exploratory factor analysis, in the confirmatory factor analysis it was analyzed whether there was a significant difference between men and women's views. When the kurtosis and skewness values and normality test results are analyzed according to gender for each factor, it is found out that the four factors do not meet normal distribution conditions. For these reasons, to learn whether there is a significant difference between participants' views for all factors Mann-Whitney U test, a non-parametric test, was utilized. As a result of the analysis, a significant difference could not be found between men and women for all factors (f1: p=.06>.05; f2: p=.17>.05; f3: p=.67>.05; f4: p=.83>.05).

DISCUSSION AND CONCLUSION

Having analyzed the literature, it was found out that there was not sufficient number of valid and reliable measurement instruments which could be used to collect quantitative data for the evaluation of education programs.

The current study generated a scale to evaluate the pedagogical formation programs implemented in Turkey. The scale consists of 25 items and four factors.

While developing the scale, exploratory factor analysis was first applied. When the data collected from the teacher candidates were analyzed through exploratory factor analysis, a scale having 26 items was developed. After the varimax rotation, which is one of the orthogonal approaches, the factors were determined and a scale having four factors was developed. The factors were named as 'Objectives of the program', 'Content of the program', 'Teaching-Learning Process of the Program' and 'Assessment and Evaluation of the Program'. The internal consistency coefficients were 0.898 for the first factor, 0.884 for the second factor, 0.822 for the third factor and 0.741 for the last factor.

The structure of the scale is in general coherent with a program's basic steps. However, at the beginning of the scale it was thought that the second factor would be "course contents" and the third one "teaching-learning processes" but after exploratory factor analysis these factors took place in different orders. Besides, in program evaluation scales similar factors were formed. Gömleksiz and Bulut (2007) formed similar factors and four factors "Aims', "Content', "Learning-Teaching", "Evaluation" were reached. Tekin and Yaman (2008) developed an evaluation scale in order to evaluate in-service education programs where they collected factors under "teaching process and aims" and "organizational design" titles. Adiguzel and Ozudogru (2014) developed a program evaluation scale oriented to Illuminative Evaluation Model where they collected factors under "Aims and Content", "Measurement and Evaluation" and "Learning-Teaching Process and Environmental Factors" titles.

Within the scope of this research, the four-factor structure revealed through the EFA was confirmed with a different sample in the CFA. After having applied the confirmatory factor analysis, one item, not having a statistical good value, was removed and a scale having 25 items and four factors was developed. The internal consistency coefficients were 0.846 for the first factor, 0.833 for the second factor, 0.786 for the third factor and 0.823 for the last factor. According to the correspondence

Table 5. The results of the CFA.

Program Evaluation Scale (PEs)	Mean	Degrees of Freedom	Standard Deviation	T Values	Error Variance
Evaluation of the overall objectives of the program (α=0.846)					
5. This program contributed to my individual and professional development and empowered related planning competencies.	3.21	0.67	0.65	10.05	0.58
6. This program helped me gain the ability to adapt the teaching-learning process to the characteristics of students.	3.00	0.67	0.67	10.44	0.56
4. This program helped me gain the knowledge and application skills regarding the educational programs of the special field I will teach in.	2.73	0.80	0.47	6.93	0.78
1. This program helped me gain the ability to direct the students' behavior and the teaching process.	3.06	0.61	0.71	11.46	0.49
2. This program helped me acquire the communication skills and benefit from the teaching-learning environment.	3.13	0.64	0.68	10.55	0.54
3. This program helped me acquire the ability to develop and evaluate educational programs	3.07	0.67	0.72	11.7	0,47
10. This program helped me gain the ability to evaluate the effectiveness of instruction and students' development.	3.13	0.61	0.7	11.14	0.51
9. This program helped me gain the knowledge of use instructional technologies and materials effectively in educational environments.	3.00	0.76	0.59	9	0.65
Evaluation of the teaching-learning processes (α=0.833)					
19. Out-of-class activities were organized to supplement the course contents.	2.38	0.82	0.57	8.55	0.58
21. Evaluations were made to determine the background knowledge of students before the courses.	2.60	0.80	0.68	10.63	0.54
14. Instruction was diversified considering the individual differences in the courses.	2.47	0.86	0.65	10.01	0.58
29. The deficiencies in learning were determined and the related feedback was provided	2.65	0.69	0.55	8.17	0.70
22. Students' needs and interests in their own field of teaching profession were considered during the pedagogical formation courses.	2.35	0.76	0.64	9.81	0.60
38. Course contents were structured in accordance with the students' interest and needs.	2.45	0.78	0.74	12.08	0.45
20. Course contents were associated with the students' background knowledge, life experiences, and learning goals.	2.64	0.73	0.7	11.17	0.51
Evaluation of the measurement and evaluation process (α=0.786)					
32. The measurement tools could measure the metacognitive skills effectively.	2.44	0.74	0.7	10.85	0.52
34. The measurement tools covered all the subjects taught in the courses.	2.63	0.75	0.59	8.75	0.66
36. The evaluation results were used to develop the current instruction.	2.62	0.69	0.65	10.01	0.57
40. Information was obtained from multiple sources to evaluate learning.	2.70	0.70	0.66	10.11	0.57
23. The measurement tools could measure the students' knowledge and skills effectively.	2.45	0.69	0.65	10	0.57
Evaluation of the pedagogical formation course contents (α=0.823)					
16. Articles, books and similar materials were shared with the students to supplement the course content.	2.67	0.69	0.53	7.92	0.72
18. Course contents covered recent developments in the field.	2.83	0.71	0.71	11.37	0.49
26. We were informed about the objectives of the courses.	2.97	0.66	0.71	11.32	0.50
12. Course contents were organized in a way to help students understand the subject.	2.90	0.69	0.82	13.86	0.33
28. The subjects of the lessons were taught in accordance with the course objectives.	2.99	0.67	0.72	11.52	0.48

analysis which was implemented as a result of confirmatory factor analysis of PEs, the scale confirmed a four-factor model and it has a reasonable correspondence. The scale can be used with similar samples to evaluate relevant programs in subsequent applications.

The validity and reliability studies of PEs confirmed that it is a highly valid and reliable measurement instrument. It is thought that the scale can be effectively used in program evaluation studies oriented to participants' views.

An evaluation of the program by stakeholders is one of the conditions to understand a program's functionality. This scale provides the opportunity to make evaluation according to participants' opinions regarding objectives, content, teaching-learning process and the assessment and evaluation process that make up the program. Findings related to validity and reliability of the scale showed that it is an appropriate tool in order for teacher candidates to evaluate teacher formation programs.

The items of this tool that is developed may be used not only for the evaluation of pedagogical formation programs but also for the evaluation of different programs based on participants' opinions. This instrument may be used by teachers and administrators for the evaluation of education programs in their own institutions as well as by researchers in the process of program development within the scope of academic studies. Since the focus group of the scale is teacher candidates, the validity and reliability studies should be conducted again in case the scale is applied with different groups.

This scale can be conducted to a sample group taken from all the pedagogical formation students in Turkey in order to be used efficiently and to raise its dissemination. The obtained data can also be analyzed in terms of dependent variables such as gender; graduated programme also can be used for a deep evaluation of the curriculum effectiveness.

As a result, this research aiming to evaluate the effectiveness of programs through participant-oriented approach reached a valid and reliable four-factor measurement instrument.

Conflict of Interests

The author has not declared any conflict of interests.

REFERENCES

Adiguzel OC, Ozudogru F (2014). İlkokul 2. Sınıf İngilizce Öğretim Programına Yönelik Aydınlatıcı Değerlendirme Modeline Dayalı Program Değerlendirme Ölçeği Çalışması. Trakya Üniversitesi Eğitim Fakültesi Dergisi 4(2).

Akbulut Y (2010). Sosyal Bilimlerde SPSS Uygulamaları [SPSS Applications in Social Sciences]. İstanbul: İdeal Kültür Yayıncılık.

Akyüz Y (2004). Türk Eğitim Tarihi (9. Baskı) [Turkish Education History-9rd edition]. Ankara: PegemA Yayıncılık.

Brown TA (2006). Confirmatory factor analysis for applied research. In: O. Çokluk, G. Şekercioğlu, S. Büyüköztürk (Eds), Sosyal Bilimler için Çok Değişkenli İstatistik [Multivariate Statistic for Social Sciences]. Ankara: Pegem Akademi.

Büyüköztürk Ş (2010). Sosyal Bilimler için Veri Analizi El Kitabı [Data Analysis Handbook for Social Sciences]. Ankara: Pegem Akademi

Cole DA (1987). Utility of confirmatory factor analysis in test validation research. J. Consulting Clin. Psychol. 55(4):584-594.

Çokluk O, Şekercioğlu G, Büyüköztürk S (2010). Sosyal Bilimler için Çok Değişkenli İstatistik [Multivariate Statistic for Social Sciences]. Ankara: Pegem Akademi.

Demirel Ö (2005). Eğitimde program geliştirme (8. Baskı) [Development of Curriculum in Education, 8rd edition]. Ankara: Pegem A Yayıncılık.

Fitzpatrick JL, Sanders JR, Worthen BR (2004). Program evaluation. Alternative approaches and practical guidelines (3rd edition). Boston: Allyn and Bacon.

Gorsuch RL (1974). Factor Analysis. In: E. Tavsancıl (Ed.), Tutumların ölçülmesi ve SPSS ile Veri Analizi [Evaluation of Attitudes and SPSS Analysis Data-3rd edition]. Ankara: Nobel.

Gömleksiz MN, Bulut İ (2007). Yeni Fen Ve Teknoloji Dersi Öğretim Programının Uygulamadaki Etkililiğinin Değerlendirilmesi [An Assessment of The Implementation of New Science And Technology Curriculum].

Hooper D, Coughlan J, Mullen M (2008). Structural Equation Modelling: Guidelines for Determining Model Fit. Electronic J. Bus. Res. Methods 6(1):53-60.

Hu LT, Bentler PM (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling: A Multidisciplinary J. 6(1):1-55.

Jöreskog KG, Sörbom D (1993). Lisrel 8: Structured equation modeling with the Simplis command language. Scientific Software International.

Küçükahmet L (2007). 2006-2007 Öğretim yılında uygulanmaya başlanan öğretmen yetiştirme lisans programlarının değerlendirilmesi [Evaluation of the Undergraduate Programs of Teacher Education Introduced in 2006-2007 Educational Year]. Türk Eğitim Bilimleri Dergisi 5(2):203-218.

Lee, HB, Comrey AL (1979). Distortion in a commonly used Factor Analytic Procedure. In: E.Tavşancıl (Ed.), Tutumların ölçülmesi ve SPSS ile Veri Analizi [Evaluation of Attitudes and SPSS Analysis Data-3rd edition]. Ankara: Nobel.

Marsh HW, Hocevar D (1988). A new, more powerful approach to multitrait-multimethod analyses: Application of second-order confirmatory factor analysis. J. Appl. Psychol. 73(1):107-117.

Ornstein AC, Hunkins FP (2009). Curriculum: foundation, principles, and issues-5rd edition. United States of America: Pearson Education, Inc.

Scherer RF, Wiebe FA, Luther DC, Adams JS (1988). Dimensionality of coping: Factor Stability Using the Ways of Coping Questionnaire. In: E.Tavsancil (Ed.), Tutumların ölçülmesi ve SPSS ile Veri Analizi [Evaluation of Attitudes and SPSS Analysis Data-3rd edition]. Ankara: Nobel.

Schumacker RE, Lomax RG (1996). A Beginner's Guide to Structural Equation Modeling. Mahwah, New Jersey: Lawrence Erlbaum Associates 288:144.

Steiger JH (2007). Understanding the limitations of global fit assessment in structural equation modeling. Pers. Individ. Diff. 42:893-898

Stufflebeam D (1971). Educational evaluation and decision making. In A. C. Ornstein, and F. P. Hunkins, Curriculum: foundation, principles, and issues-5rd edition. United States of America: Pearson Education, Inc.

Sümer N (2000). Yapısal eşitlik modelleri: Temel kavramlar ve örnek uygulamalar [Structural equation modeling: basic concepts and applications]. In: Y. Akbulut, Y.L. Şahin, B. Erişti, Development of a Scale to Investigate Cybervictimization among Online Social Utility Members Comtemp. Educ. Technol. (1):46-59.

Şahin Ç (2007). 1979 ile 2006 yılları arası Türkiye'deki sınıf öğretmeni yetiştirme programlarının karşılaştırılması [Comparison of primary teacher training programs ranging from 1979 to 2006 in Turkey]. Sosyal Bilimler Araştırmaları Dergisi, 2, 138-156

Tabachnick BG, Fidell LS (1996). Using multivariate statistics (3rd edition). In Y. Akbulut, Y.L. Şahin, B. Erişti, Development of a Scale to Investigate Cybervictimization among Online Social Utility Members Comtemporary Educ. Technol. (1):46-59.

Tekin S, Yaman S (2008). Hizmet-içi eğitim programlarını değerlendirme ölçeği: öğretmen formunun geliştirilmesi [The Evaluation Scale of in-Service Education Program: The Development of Teachers' Form]. Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi (KEFAD), 9(3):15-26.
Yılmaz V, Çelik EH (2009). LİSREL ile yapısal eşitlik modellemesi-I: Temel Kavramlar, uygulamalar, programlama. Ankara: Pegem Akademi Yayıncılık.

Appendices

Table 1. Program evaluation scale.

Program Evaluation Scale (PEs)	Strongly agree	Agree	Disagree	Strongly disagree
1. This program helped me gain the ability to direct the students' behavior and the teaching process.				
2. This program helped me acquire the communication skills and benefit from the teaching-learning environment.				
3. This program helped me acquire the ability to develop and evaluate educational programs				
4. This program helped me gain the knowledge and application skills regarding the educational programs of the special field I will teach in.				
5. This program contributed to my individual and professional development and empowered related planning competencies.				
6. This program helped me gain the ability to adapt the teaching-learning process to the characteristics of students.				
7. This program helped me gain the knowledge of use instructional technologies and materials effectively in educational environments.				
8. This program helped me gain the ability to evaluate the effectiveness of instruction and students' development.				
9. Course contents were organized in a way to help students understand the subject.				
10. Instruction was diversified considering the individual differences in the courses.				
11. Articles, books and similar materials were shared with the students to supplement the course content.				
12. Course contents covered recent developments in the field.				
13. Out-of-class activities were organized to supplement the course contents.				
14. Course contents were associated with the students' background knowledge, life experiences, and learning goals.				
15. Evaluations were made to determine the background knowledge of students before the courses.				
16. Students' needs and interests in their own field of teaching profession were considered during the pedagogical formation courses.				
17. The measurement tools could measure the students' knowledge and skills effectively.				
18. We were informed about the objectives of the courses.				
19. The subjects of the lessons were taught in accordance with the course objectives.				
20. The deficiencies in learning were determined and the related feedback was provided				
21. The measurement tools could measure the metacognitive skills effectively.				
22. The measurement tools covered all the subjects taught in the courses.				
23. The evaluation results were used to develop the current instruction.				
24. Course contents were structured in accordance with the students' interest and needs.				
25. Information was obtained from multiple sources to evaluate learning.				

Table 2. Factor and items.

Factor 1	Evaluation of the overall objectives of the program (1, 2, 3, 4, 5, 6, 7, 8)
Factor 2	Evaluation of the course contents (9, 11, 12, 18, 19)
Factor 3	Evaluation of the teaching-learning processes (10, 13, 14, 15, 16, 20, 24)
Factor 4	Evaluation of the measurement and evaluation process (17, 21, 22, 23, 25)