Developing a Scale for Attitudes towards the Curriculum Development and Instruction Course*

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Abstract
The purpose of this study was to develop a scale in order to measure prospective teachers’ attitudes towards the Curriculum Development and Instruction course. The study group was composed of 286 prospective teachers. The process of developing the Attitude Scale involved a literature scan, taking student opinions through essays, creating an item pool, taking expert opinions, a pretesting study as well as studies on determining the structural validity and reliability. The scale as a result of analysis consisted of 30 items and three factors. These factors were called contradiction (12 items), interest (9 items) and appreciation (9 items). It was seen that the factor weights of the scale items varied between 0.51 and 0.75. Three factors were interpreted 60.15% of total variance on scale scores. The statistical analysis concluded that the Attitude Scale for Curriculum Development and Instruction course was a valid and reliable tool.

Key Words
Curriculum Development, Attitude, Scale Development, Prospective Teacher.

Teachers are one of the main components of education systems. Teachers’ professional task and responsibility fulfillment depends on teaching skills. Teachers’ professional quality consists of general knowledge, branch knowledge, teaching knowledge, skills and qualifications. Teachers gain professional skills through teaching profession knowledge courses and practices included in teacher training programs (Varış, 1976). Carrying out teaching profession knowledge courses effectively is necessary to provide prospective teachers with the teaching qualifications in an effective way. A teacher who is trained academically and vocationally well can be competent in his/her profession (Hesapçıoğlu, 1988). Therefore, it is critical to increase the quality of pre-service teacher training programs and provide prospective teachers with professional knowledge, skills, attitudes and values in an efficient way. Increasing the quality of education could be ensured by quality teachers.

In Turkey, restructuring was introduced in pre-service teacher training programs in 1998 to train quality teachers and it was put into practice in the 1998-1999 academic year (Baskan, 2001; Kavak, Aydın, & Altun, 2007; YÖK/Dünya Bankası, 1998). During the process, it was decided by The Council of Higher Education [CoHE] to train secondary school teachers with undergraduate programs combined with non-thesis graduate program or non-thesis graduate programs (“Lisansüstü Eğitim,” 1996). One of the teaching profession knowledge courses included in the programs was the Curriculum Development and Instruction Course (Kavak et al., 2007). With the latest regulation by CoHE as of the 2010-2011 aca-
Academic year, it was decided to end Secondary School Education Non-Thesis Graduate Programs and to provide formation within undergraduate programs. The regulation defined pedagogical formation certificate courses for teachers and the principles of pedagogical formation training (Yükseköğretim Kurulu [YÖK], 2010a). The 2 credit course including 2 hour theoretical lecture was also covered by Certificate Program for English Language Education. The content of the course consisted of curriculum development and stages in instructional process, main principles, instructional planning and applications, new approaches in teaching and instruction, teachers’ tasks and responsibilities for increasing the quality of instructional services and so on (YÖK, 2010b). Within the framework of the course, it was attempted to provide prospective teachers with knowledge, skills, and attitudes related to curriculum development.

Curriculum development process necessitates a teamwork that teachers are also participated and occurring in various levels (Hesapçıoğlu, 1988). Curriculum development is a process on national, regional, local scales or school wide. However, program documents at these levels are used for teaching-learning strategies for teachers, not for content imposition. Teachers could contribute to defining curriculum policies, contents and strategies in the light of educational background outcomes and needs (Ashman & Conway, 1993). Teachers’ task and responsibility fulfillment in nation and school wide curriculum development process may contribute to sound applications (Demirel, 2009). Teachers play an important role in curriculum decision making, curriculum application and evaluation. They need to get involved in every stage of curriculum development process (Ornstein & Hunkins, 1988; Sönmez, 1994). Teachers, as a part of their role in curriculum development, must be able to develop ideas for what activities with what objectives should be performed by students in the light of reference books and expert views (when necessary) (Ertürk, 1975). Teachers can develop best practices like in the profession of medicine, justice and engineering (Tanner & Tanner, 2007). Nevertheless, performing curriculum draft planning, application, evaluation and development activities at desired quality depends on teachers’ knowledge and skills and expected behavior display (Saylan, 2001). As Varış (1976) pointed out, curriculum development could be achieved as a result of the improvement of all the related factors. Curriculum application achievement is based on all the improved conditions; particularly teacher improvement. For this reason, teachers need to be trained in a way that they can implement principals both in general and specific situations change the conditions and support the development of programs in teacher training programs (Tanner & Tanner).

Therefore, providing prospective teachers with knowledge, skills and positive attitudes especially in the Curriculum Development and Instruction Course is critical for a proper task and responsibility fulfillment. Prospective teachers’ attitudes towards the Curriculum Development and Instruction Course might affect their learning, as well as professional knowledge and skills. Attitudes, as an indispensable part of affective qualities, greatly influence students’ academic learning (Bloom, 1998). Attitudes are tendencies towards reaction as a result of experience, which guide individuals’ behaviors or have dynamic effects on behaviors and these tendencies show continuity for a certain period of time (Tavşancıl, 2002). Individuals’ attitudes are acquired internal capacities and they affect choices of individual activities towards a group of things, other individuals, incidents and various cases. Schools try to give students positive attitudes (Senemoğlu, 2009). Positive attitudes make learning easy, while negative attitudes hinder learning. Consequently, it is necessary to measure and evaluate students’ attitudes towards courses (Turgut, 1977). Prospective teachers’ attitudes towards the Curriculum Development and Instruction Course could guide their behaviors. Having positive attitudes towards the Curriculum Development and Instruction Course may both increase prospective teachers’ learning in the course and ensure successful task and responsibility fulfillment in curriculum development process in teaching. Moreover, it must not be forgotten that teachers with positive attitudes and behaviors could teach students positive attitudes and behaviors. Students are affected by teachers’ attitudes. Teachers’ attitudes and behaviors play an important role in creating new generations (Varış, 1976). As a result, prospective teachers need to have positive attitudes during pre-service training programs. Determining prospective teachers’ attitudes towards the Curriculum Development and Instruction Course is critical in that we need to train teachers who could effectively apply curricula, contribute to curriculum development and teach students positive attitudes.

When the literature in Turkey is reviewed, it is clearly seen that although there are studies on prospective teachers’ attitudes towards teaching
profession knowledge courses in teacher training programs (Ekici, 2008; Erden, 1995; Karaca, 2006; Kılınç & Salman, 2007; Otacioglu, 2010; Önen & Koçak, 2011), the number of research is low. Furthermore, there is no study on attitudes towards the Curriculum Development and Instruction Course. Pre-service training programs are largely influential on prospective teachers’ positive attitudes. However, in related studies, it was determined that prospective teachers reluctantly participated in courses and did not attach much importance to courses (Erden, 1995). Research findings showed that teacher training programs were not satisfactory in terms of developing positive attitudes in prospective teachers (Can, 1991). In general, a good curriculum is expected to develop relevant positive attitudes in learners (Erden, 1998). It is necessary to determine and develop prospective teachers’ attitudes towards the Curriculum Development and Instruction Course, a vital component of teacher training programs, to make the course much more effective. For this reason, an attitude scale is needed to determine the attitudes of prospective teachers towards this course. The purpose of this study was to develop a scale in order to measure prospective teachers’ attitudes towards the Curriculum Development and Instruction course.

**Method**

**Research Design**

In this research, a Likert type attitude scale was designed and developed to measure prospective teachers’ attitudes towards the Curriculum Development and Instruction Course. Likert type scales are the most practical of all attitude scales (Erden, 1998). Likert type scales are based on self-response (Tezbaşaran, 1997). The scale developed for the study was designed to get information about prospective teachers’ cognitive, affective and behavioral tendencies towards the Curriculum Development and Instruction Course.

**Study Group**

The study group consisted of total 286 students from Dumlupınar University, Department of Secondary School Social Sciences Teaching, Science and Mathematics Teaching Non-Thesis Graduate Programs and Certificate Program for English Language Education in the spring semester of the 2008-2009 academic year. The students’ ages ranged from 20 to 30.

**Research Instrument**

In order to develop an attitude scale to measure prospective teachers’ attitudes towards the Curriculum Development and Instruction Course a testing form was prepared first. During the testing from preparation, the required procedure to develop a Likert type scale was followed (Erden, 1998; Tavşancıl, 2002). Accordingly, the testing from preparation stages were as follows:

- a) Attitude item production stage
- b) Expert suggestion stage
- c) Pre-testing stage

Related attitude scales in the literature developed for various courses were reviewed to create attitude items (Aşkar & Erden, 1987; Ekici, 2008; Erkuş, Sanlı, Bağl, & Güven, 2000; Karaca, 2006; Kılınç & Salman, 2007; Semerci, 1999). It was seen that the studies in the literature were largely on teaching profession and generally attitudes towards teaching profession knowledge courses. There was no attitude scale for the Curriculum Development and Instruction Course in teacher training programs. For the item preparation, the literature and attitude scales for similar courses were referenced.

To develop attitude items of the scale, 35 students who were taking the course in Non-Thesis Graduate Program were asked to write their feelings, opinions and behaviors concerning the course. Then a content analysis was carried out for the essays and the statements which were eligible for becoming attitude items were determined. A draft form consisting of total 64 items, half of which were positive and half of which were negative, was developed for the Curriculum Development and Instruction Course. The draft form was submitted to experts for content validity. The items were examined by an expert of measurement and six curriculum development experts and the items were evaluated in terms of eligibility and clarity. Some of the statements were changed and some were deleted from the draft scale according to expert suggestions.

After these rearrangements, a testing from which consisted of 48 item statements was obtained. 45 prospective teachers were given the testing form. They were also asked their views about item clarity and answering time. In the light of the feedback from the experts and the prospective teachers, similar or overlapping items were deleted from the draft scale. It was especially attempted to have the same number of positive and negative items. Following this stage, a testing form consisting of 38 items (19
positive, 19 negative items) was created. The scale items were randomly sequenced in the testing form. After the necessary changes were made in the form, it was applied to the prospective teachers included in the study who took the Curriculum Development and Instruction Course at the end of the semester in order to carry out validity and reliability analysis. The data from 286 prospective teachers who fully answered the scale items were evaluated.

In the study, the answers to the attitude items were five-point-scale type (5= I totally agree- 1=I totally disagree). In this study, as Turgut and Baykul stated (1992), the positive attitude items were scored from I totally disagree (1) to I totally agree (5) to obtain each prospective teacher’s total attitude score. On the contrary, the negative attitude items were scored from I totally disagree (5) to I totally agree (1).

Data Analysis

In the study, descriptive statistics were calculated for each item score and scale scores. Correlation based item analysis technique and non-correlation t test method to test the difference between high and low group means were used for item analysis. Cronbach alpha coefficient was used for scale reliability estimation. Exploratory factor analysis was used for testing construct validity of the scale. Pearson technique was used for factor correlations. In data analysis, $p<.05$ was taken as the level of significance.

Results

In this section, the findings about validity and reliability studies based on the data from the application of 38-item-attitude scale to 286 students and interpretations are mentioned. During the scale development process, descriptive analysis, item analysis, factor analysis, factor reliability analysis and correlation definition were the stages. The findings about the reliability and validity studies of the scale in those stages are interpreted and listed in tables.

Descriptive Analysis

In Likert type scale development, distribution of scale scores needs to be examined before individual item analysis (Tavşancıl, 2002; Tezbaşaran, 1997). In this respect, distribution of total scores obtained was first examined. The expected lowest score was 38.00, the highest score was 190.00, and the range was 152.00 as there were 38 items in the scale. In the study, the lowest score was found as 50.03, the highest score was found as 185.13, and the range was 135.10. It was seen that the scale largely covered the expected range. The mean scale score was 119.44, the median was 118.07, the mode was 140.11 and the standard deviation was 27.08. Coefficient of Skewness was -.055 and coefficient of Kurtosis was -.341. It might be suggested that scores do not significantly deviate from normal distribution when Coefficient of skewness ranges between + - 1 (Büyüköztürk, 2005). Besides, according to Kolmogorov-Smirnov test results, it was determined that the scores did not significantly deviate from normal distribution ($p=0.20>0.05$). These findings showed distribution of the scale scores was close to normal distribution. After examining the score distribution, arithmetic means and standard deviations for each item were calculated and item analysis was carried out.

Item Analysis

According to the relevant literature, after examining the score distribution, item analysis is used to choose strong and discriminating items for Likert type scale. For the analysis of items; correlations based, internal consistency criterion (low-high group t test) based and simple linear regression with one or more of the techniques can be applied as indicated (Ary, Jacobs, Razavieh, & Sorensen, 2010; Baloğlu, Karadağ, & Karaman, 2008; Erkuş, 2003; Önen & Koçak, 2011; Tavşancıl, 2002; Tavşancıl & Keser, 2002; Tezbaşaran, 1997). In this study also, item analysis techniques based on correlations and internal consistency criterion (low-high group t test) was used. Calculating correlations between each scale item and scale score is the first objective control suggested by Likert (Tezbaşaran, 1997). Item total score correlations were calculated to determine items to be included in the scale. A high, positive item total correlation shows items illustrate similar behaviors and internal consistency of tests is high (Büyüköztürk, 2005). Items with item-test correlation coefficients of 0.40 or more are highly discriminating items (Ebel, 1965 as cited in Erkuş, 2003, p. 135). Items with low correlations must be deleted from scales as reliability and validity of a scale developed by gathering low correlated items or non-correlated items is low (Tezbaşaran, 1997). In the light of this information, item 1, item 14, item 28 and item 33 were deleted from the scale developed for this study according to item analysis findings, because item t-test correlations of those items were lower than 0.40.

One of the methods used in item analysis is testing differences between item mean scores of high and low groups formed according to total scores
by non-correlation t test. In this test, observed significant differences between groups are considered as an indicator of internal consistency of the test. Results of analysis show to what extent items discriminate between individuals in terms of the measured behavior (Büyüköztürk, 2005; Erkuş, 2003; Tezbaşaran, 1997). In this study, prospective teachers’ total scores in the testing scale were calculated to determine discriminating power of the items and they were divided into groups: 27% high group (n=77), 27% low group (n=77). Then, t test for non-groups was applied to these groups. As a result of analysis, there was no significant difference between high and low group means in the first factor (t=1.040; p=.300>.000), but there were significant differences between high and low group means in the other factors (p<.001). As a result of the two item analyses, item 1, item 14, item 28 and item 33 with low item-test correlation and t values were deleted from the scale and the construct validity of the remaining items was analyzed.

**Factor Analysis**

The validity of a scale is the degree to serve a specific purpose (Karasar, 1991). In the study, in the light of item analysis results, factor analysis was carried out over the remaining 34 scale items in order to test construct validity of the scale. Before factor analysis application, the data were examined in terms of factor analysis eligibility. In Principal Component Analysis, Kaiser-Meyer Olkin (KMO) value was found as 0.96 and the result of Bartlett test (6430.752, df: 561; p<.001) was found significant. The fact that KMO was greater than 0.60 and Barlett test was significant showed that data were eligible for factor analysis (Büyüköztürk, 2005). In this case, data sets were considered eligible for factor analysis and factor analysis was carried out for the obtained data. In order to determine significant factor number, factors with eigenvalue greater than 1 and the percentage of explained variance were taken into account. It was seen that the 34 items were grouped under three factors with eigenvalue greater than 1. Explained variance by the three factors was 58.045 %. Common factor variances of the items ranged from 0.428 to 0.740. All the factor loadings of the items in the first factor were 0.507 and above. This finding showed that the scale had a general factor. Also, the fact that variance caused by the first factor was 45.50 % indicated that there was a general factor.

As it was a three factor scale, an oblique rotation technique (promax) was applied to the items to determine highly correlated items in the factors and to interpret them more easily. Promax was preferred thinking that there were correlations between the factors. According to factor rotation results, it was seen that item 25 had a factor weight of 0.572 in the first factor, and a factor weight of 0.530 in the second factor. Item 31 had a factor weight of 0.544 in the first factor and a factor weight of 0.573 in the second factor. A factor weight of 0.45 or above seems to be a good criterion for choosing. Moreover, a minimum difference of 0.10 between the highest factor weight of an item in factors and the next highest factor weight is suggested (Büyüköztürk, 2005). Therefore, in this study, the items (Item 25 and Item 31) were deleted from the scale, since they had high weights in both factors and the difference between factor weights was 0.10. Factor analysis was repeated for the remaining 32 items. According to factor rotation results following factor analysis, it was seen that item 26 had a factor weight of 0.639 in the second factor and had a factor weight of 0.649 in the third factor. Moreover, item 35 had a factor weight of 0.614 in the second factor and had a factor weight of 0.643 in the third factor. These items (Item 26 and Item 35) were deleted from the scale since they had high values close to each other in both factors. As a result of analysis, the finalized scale consisted of total 30 items; 18 positive, 12 negative.

Factor analysis was repeated for the remaining 30 items which constituted the finalized scale. KMO value was found as 0.95 and Bartlett result was found significant (5735.633, df: 435; p<.001). Common factor variances of the items (extraction) ranged from 0.428 to 0.740. The first factor explained 46.87% of the total scale variance, the second factor explained 7.25% of the total scale variance and the third factor explained 6.03% of the total scale variance. Total variance explained by the three factors was 60.15%. In social sciences, variance percentages ranging from 40% to 60% by analysis are considered sufficient (Scherer, Wiebe, Luther, & Adams, 1988 as cited in Tavşancıl, 2002, p. 48). In this study, the obtained variance percentage was considered sufficient. The factors in the scale largely explained item total variance and the scale variance.

According to Principal Component Analysis, it was seen that the 30 items were under the first factor and the factor weights of the items before rotation ranged from 0.515 to 0.758. According to the findings, it might be suggested that the scale was single dimensional and had a general construct and three factors, when the high variance explained by the first factor and eigenvalue of the first factor higher
than eigenvalue of the second factor were taken into account. The first factor consisted of 12 items and the second and the third items consisted of 9 items each (Appendix 1). The factors were called according to the item content. The first factor in the scale was called “Contradiction”, the second factor was called “Interest” and the third factor was called “Appreciation”.

Correlations between factor scores to examine criterion validity of the scale and the adjusted total scores were calculated. Calculating factor-total correlations over the adjusted total score is suggested (Büyükoztürk, 2005). Hence, the adjusted total scores and the adjusted total score for each factor were calculated by extracting the factor scores from total score. As a result of analysis, when correlation coefficients of the sub-factors of the scale were examined, factor scores showed that there were positive, significant correlations between the factors and the adjusted total score ($p<.01$). It might be suggested that correlation between the factors was moderate and correlation between the factors and the adjusted total scores was highly positive.

Reliability of the Scale
Reliability is to the determination between the independent measurements of the same thing. To ensure the reliability, random errors in the measurement must be debug (Karasar, 1991). Cronbach alpha coefficient is calculated for an attitude scale where a five-point-Likert scale is used (Büyükoztürk, 2005). In this study, Cronbach alpha reliability coefficient for the finalized scale consisting of 30 items was calculated as $\alpha=0.96$. Reliability coefficients of the scale according to the sub-factors were respectively 0.94, 0.92 and 0.90 (starting from the first factor). Alpha coefficient which is higher than 0.80 shows that a scale is highly reliable (Özdamar, 1999). In this study, scale reliability was high since reliability coefficient of the scale was close to 1.

Scale Score Evaluation
The lowest score form the finalized scale was 30.00 and the highest score was 150.00. Low scores showed negative attitudes towards the Curriculum Development and Instruction Course and high scores showed positive attitudes towards the Curriculum Development and Instruction Course. An increase in the first sub-scale score showed a decrease in the contradiction level and an increase in interest level in the second sub-scale and an increase in appreciation level in the third sub-scale. The row width was expected to be 120.00 (150-30) to ensure that the scale scores covered all attitude components. The row width of the scale scores was 100.22. The scale covered most of the expected width.

Conclusions and Recommendations
The purpose of this study was to develop a Likert type scale in order to measure prospective teachers’ attitudes towards the Curriculum Development and Instruction course. To this end, the number of the defined attitude items was lowered to 38 as a result of expert suggestions and pre-testing and they were given to 286 prospective teachers. In the light of reliability and validity analysis over the data obtained by pre-testing application, 9 items were deleted from the scale. The scale as a result of analysis consisted of 30 items and three factors. These factors were called contradiction (12 items), interest (9 items) and appreciation (9 items). Total variance explained by the three factors in the attitude scale was 60.15%. Cronbach alpha reliability coefficient of the scale was 0.96.

The findings showed that “Attitude Scale for the Curriculum development and Instruction Course” could be considered as a valid and reliable measurement tool to measure prospective teachers’ attitudes towards the Curriculum Development and Instruction course. However, it is useful to test whether the obtained findings will apply to other groups. In addition, it is believed that confirming the scale findings by confirmatory factor analysis in studies with more comprehensive and different sample groups and examining correlations to similar scales will strengthen the validity and reliability findings and contribute to further scale development. Within this framework, further research on the scale reliability and validity is recommended.

References/Kaynakça


http://www.yok.gov.tr/content/view/64/93/lang.tr_TR/ adresinden 06 Temmuz 2010 tarhinde edinilmiştir.