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ScienceDirect

Procedia Social and Behavioral Sciences 15 (2011) 2733–2737

Procedia Social and Behavioral Sciences

WCES 2011

A study on developing an attitude scale towards multi-grade classrooms for elementary school teachers

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Abstract

The aim of this study is to develop an attitude scale towards multi-grade classrooms (AMC) for elementary school teachers who work in the Multi-grade Classrooms. The research was carried out with the total 215 elementary school teachers in Tokat and Samsun provinces in Turkey. The study carried out in five stages that are literature review, creating item pool, expert opinions, administer of scale and computing the reliability and validity. The five point rating scale consisted of 50 items was developed. The draft scale obtained has been applied to the total 205 elementary school teachers and as a result of factor analysis; the number of items in draft scale was reduced to 43. The Cronbach-Alpha internal integrity coefficient of the final version of the scale was found to be 0.81 after factor analysis was carried out. The scale has been ready to be used.

Keywords: Multi-grade Classrooms, Attitude Scale, Elementary School Teachers.

1. Introduction

Today all systems of formal education are organized with respect to age and grade. Organization of grades can be divided into two groups as the mono-grade class (age based class) and multi-grade class (Little, 2001). One of the ideals is the mono-grade classroom but some conditions force the educational systems to leave from the ideal. Therefore, when it is impossible to create mono-grade classes in order to provide education; it is necessary to establish multi-grade classrooms. Mycock (1967) described the multi grade classrooms as the organization where children of different ages were placed together in the same class. In multi grade teaching, teachers have to use two or more curriculum grades within definite period (Little, 2001, Ozturk, 2007). The multi-grade classrooms are not desired one by teachers and education administrations but in some conditions it is very necessary and sensible to employ the multi-grade classroom. Owing to low density of population, declining number of students' enrolments, deficient number of teachers, economic reasons, it is required to employ the multi-grade classroom approach (Ford,

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1877–0428
doi:10.1016/j.sbspro.2011.04.179

1977; Erdem et al, 2005). The schools with the multi-grade classrooms have maximum four teachers. In other words the number of teachers in the schools with the multi-grade classrooms ranges from 1 to 4 (Koksal, 2002). There are two major groups named A and B in the application of the multi-grade classrooms. Group of A includes first, second and third grades and group of B comprises fourth and fifth grades. If there are three teachers in a school with multi-grade classrooms, one teacher instructs the first grade separately and other teachers share the other grades In case of two teachers, one teacher teaches the group of A and other teacher teaches group of B. Should there is one teacher, all the grades are instructed by the one teacher (Erdem, 2004).

There is a big debate on whether the students taught in the mono-grade classroom are more successful than the students taught in the multi-grade classroom or vice versa. When the literature is investigated, it can be seen easily that multi-grade classroom has positive and negative aspects. According to Mycock (1967) the multi-grade classrooms offer each child to be leader and follower. In addition to that when older students are asked to be tutor, their self-confidence and leadership characteristics can be developed (Stehney, 1970). Furthermore the multi-grade classroom develops students' affective feelings. For instance younger children develop to admiration for older children and the older children develop protective attitudes towards the younger children (Franklin, 1976). So many researchers (Miller, 1991; Pratt, 1986; Thomas & Shaw, 1992, Veenman, 1995) reported that the multi-grade classroom had more beneficial effects on non-cognitive abilities such as self-concept, self-confidence, emotional and social qualities than the mono-grade classroom. However it impossible to say that there is a consensus on cognitive outcomes. Although Veenman (1995) found that students taught in the multi-grade classrooms were more successful than the students taught in the mono-grade classrooms, Mason & Burns (1997) reported that the multi-grade classrooms had some negative effects on students' cognitive characteristics.

In the literature, although some studies were expressed that students which educated multi-grade classroom had positive characteristic (Mycock 1967; Miller, 1991; Pratt, 1986; Thomas & Shaw, 1992, Veenman, 1995), there are some studies were dictated that students were affective negatively in multi-grade classroom. Besides, there are some studies which it was tried to determinate difficulty of teachers in multi-grade classroom (Erdem, et al. 2005; Kilic and Abay, 2010) and teachers opinions on multi-grade classroom (Izci et al., 2010). In addition to some studies focus on theoretical knowledge on multi-grade classroom (Franklin, 1976; Pratt, 1986; Köksal, 2002; Erdem, 2004; Öztürk, 2007). But there is a lack of study determination teachers' attitude towards multi-grade classroom and developing attitude scale towards multi-grade classroom. So, it is thought that developing attitude scale towards multi-grade classroom is very useful for researchers who study to this subject

The aim of study is to develop a scale in order to determinate attitudes of elementary school teachers which worked in the multi-grade classrooms towards the multi-grade classrooms.

2. Method

The aim of study is to develop an attitude scale in order to determinate attitudes of elementary school teachers which worked in the multi-grade classrooms. This scale development study was conducted with 215 elementary school teachers who worked in Tokat and Samsun provinces in Turkey.

2.1. Sample

The study was carried out at fall semester of 2010 with 205 elementary school teachers in Tokat and Samsun. According to gender variable, 110 (53.7%) male and 95 (46.3 %) female elementary school teachers participated in the study. 100 of this research sample had between one and four years, 70 of this research sample had between five and nine years, 35 of this research sample had more nine years professional experience.

2.2. Development Process of Attitude Scale

The study consists of five stages: literature review, item pool, expert opinion, creating the scale and computing the reliability and validity. At the first stage many studies (Izci et al. 2010, Erdem, et al. 2005; Kilic and Abay, 2010; Little, 2001, Ford, 1977; Metin, 2011) were reviewed. After the review, the researchers asked ten elementary school teachers to write a composition on the multi-grade classrooms and teaching in the multi-grade classrooms in order to

determinate items of attitude scale towards multi-grade classrooms. At the second stage the researchers constituted an item pool by investigating the ten elementary school teachers' statements from their compositions and reviewing many scale. The item pool consisted of 60 items. 30 of them were negative statements and other 30 of them were positive statements. 60 statements were inserted into five point rating scale like *"strong disagree"*, *"disagree"*, *"undecided"*, *"agree"* and *"strong agree"*. At the third stage, in order to provide content validation initial draft of the scale with 60 items on a five point rating scale was given to the experts in Turkish Language, educational psychology and measurement and assessment in education. The experts were asked to investigate items in the respect of content, comprehensibility, readability, consistency. The number of the items on the five point rating scale was reduced from 60 to 50. 23 of them were negative statements and other 27 of them were positive statements. At the fourth stage, final draft of attitude scale with 50 items was applied on the 205 elementary school teachers which were voluntary participate in order to calculate validity and reliability of the scale. At the fifth stage, the data gathered from 205 elementary school teachers were analyzed in terms of validity and reliability analysis with SPSS 11.5. The data were subjected to factor analysis through principle component method to investigate the factor structure behind the attitude scale. After content validation, the reliability analysis was performed for each of the emerged subscales and Cronbach Alpha Coefficient.

3. Finding

After final draft of the scale had been administered 205 elementary school teachers, exploratory factor analysis was carried out. The Kaiser –Mayer Olkin (KMO) measurement of sample adequacy and Barlett's test were calculated to assess whether sample was enough to apply a satisfactory factor analysis. It was found that the KMO coefficient was 0.79. This value is higher than critical value of 0.5 (Kline, 1994). Barlett's test of Spherincity statistic was significant [2893.573 ($p< 0.01$)]. Results of the KMO and Barlett's test seemed to support validity of factor analysis for the present research. After KMO and Barlett's test were calculated, exploratory factor analysis was applied to scale. Exploratory factor analysis allows the researcher to contemplate the number of factor (Bisquerra, 1989; Visauta, 1998). The object of the factor analysis is to determine the number of separate components. Firstly, principle components factor analysis was used on all the data to extract the appropriate number of factors. Initial calculations revealed that 9 factors had Eigen value more than 1. These factors explained 63,758 of variance of results. Before the factor analyses, 7 out of 50 items (3th, 25th, 26th, 27th, 42th, 46th and 48th) were removed from the scale because of the fact that their factor loadings were lower than 0.3 (Kline, 1994, Buyukozturk, 2004). Then warimax rotation was administered and the factor loading for each item was investigated. Loadings less than 0.30 were removed. As a result of rotation and investigation of factor loadings, the factor analysis disclosed six independent factor structures. Factor structures and loadings of the 43 items in AMC were given table 1.

As seen table 1, Factor 1 includes 5^{th}, 7^{th}, 9^{th}, 11^{th}, 13^{th}, 15^{th}, 17^{th}, 21^{th} and 23^{th}. Those items measure elementary school teachers' positive beliefs in the multi-grade classrooms. Therefore Factor 1 was named as *"Positive Beliefs in Multi-Grade Classrooms" (POBMC).* Factor two consists of 9 items. Those items are 4^{th}, 6^{th}, 8^{th}, 10^{th}, 12^{th}, 14^{th}, 24^{th}, 32^{nd}, and 40th. Those items measure elementary school teachers' negative thoughts on the multi-grade classrooms so Factor 2 was named as *"Negative Opinions on the Multi-Grade Classrooms" (NOMC).* 7 items constitutes Factor 3. Those items are 1^{st}, 33^{rd}, 35^{th}, 37^{th}, 39^{th}, 41^{th} and 45^{th}. Those items measure the multi-grade classrooms' contributions to students so Factor 3 was named as *"Benefits of the Multi-Grade Classrooms on Students" (BMC).* Factor 4 includes 19^{th}, 29^{th}, 31^{st}, 43^{th}, 47^{th}, and 49^{th}. Factor 4 measures the elementary school teachers' eagerness for the multi-grade classrooms. Factor 4 was named as *"Being Eager for the Multi-Grade Classrooms" (BEMC).* There are 5 consists of 2^{th}, 16th, 18^{th}, 20^{th}, 22^{th} items. Factor 5 measures attitudes which mean to attach no significance for. Factor 5 was named as *"Not appreciated the Multi-Grade Classrooms" (NAMC).* Factor 6 includes 28^{th}, 30^{th}, 34^{th}, 36^{th}, 38^{th}, 44^{th} and 50^{th} items. Those items measure the apprehension to the applications of multi-grade classrooms so Factor 6 was named as *"Anxiety to the Applications of Multi-Grade Classroom" (AAMC).*

After it were determinate factor names, factors loading and including items of factors, Reliability analysis was done for each factor and cronbach alpha coefficients were used. It was determined that croanbach alpha value of POBMC is 0.817, NOMC is 0.815, BMC is 0.798, BEMC is 0.703, NAMC is 0.681 and AAMC is 0.687. Also, it

was found that croanbach alpha value of total scale AMC is 0.81. According to these results, it was said that attitude scale towards Multi-Grade Classrooms is a validity and reliability scale.

Table 1. Factor Structures and Loadings of the 43 Items in AMC

		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
5	Application of multi-grade classroom is fruitful for our country.	.718					
7	I am in favour of the multi-grade classrooms instead of conveyance system.	.698					
9	I derive great pleasure from teaching in the multi-grade classrooms.	.666					
11	I'd like to be appointed and work voluntarily	.648					
13	The application of multi-grade classrooms does not have any problem	.634					
15	I am very comfortable while I teach in the multi-grade classrooms.	.513					
17	I am contented to work in the multi-grade classrooms.	.506					
21	Application of multi-grade classrooms is necessary in terms of our country's conditions.	.484					
23	Working in the multi-grade classrooms is a privilege.	.483					
4	I am tired in the multi-grade classrooms.		.688				
6	If I am not compulsory, I don't want to teach in the multi-grade classrooms.		.665				
8	I don't want to work in the multi-grade classrooms.		.647				
10	I don't want to teach in the multi-grade classroom for my following appointment.		.602				
12	The multi-grade classrooms must be rescinded and conveyance system must be come into force.		.589				
14	The multi-grade classrooms don't have enough equipments		.583				
24	Conveyance education is more efficient than the multi-grade classrooms.		.578				
32	I believe in that time is not enough in the application of multi-grade classrooms.		.551				
40	The multi-grade classrooms do not have any incentive characteristics.		.521				
1	Students' ability of learning oneself improves in the multi grade classrooms.			.770			
33	The multi-grade classrooms enables students to have critical thinking perspective			.769			
35	Students learn to be respectful to differences in the multi-grade classroom.			.717			
37	Students know their defects from each other in the multi-grade classroom.			.706			
39	Students attain an entrepreneurial spirit in the multi-grade classrooms.			.647			
41	Keeping students attending different grade levels together provides effective communication environment			.408			
45	Every teacher can teach easily in the multi-grade classrooms.			.362			
19	I trust myself in the application of multi-grade classrooms.				.621		
29	I feel that I am ready to teach in the multi-grade classrooms				.600		
31	I start lessons with eagerness in the multi-grade classrooms				.594		
43	I don't realize how the time is spent while I teach in the multi-grade classrooms				.555		
47	I have enough qualifications to teach in the multi-grade classrooms				.481		
49	I enjoy dealing with students in the multi-grade classrooms				.408		
2	I think multi-grade classrooms are a waste of time					.737	
16	The application of multi-grade classrooms is too expensive					.681	
18	Teaching in the multi-grade classrooms does not have any significance for me					.660	
20	The application of multi-grade is unnecessary					.525	
22	The students from the multi-grade classrooms have problems in their later life					.417	
28	I have difficulty with providing students' motivation.						.588
30	I confuse what to do when I begin the lesson						.587
34	I am uneasy while I teach in the multi-grade classrooms.						.525
36	I don't even hear name of the multi-grade classrooms.						.514
38	The application of multi-grade classroom is boring.						.506
44	The application of multi-grade classrooms doesn't have any contribution to my profession.						.434
50	It was my biggest fear to be appointed to the multi-grade classrooms.						.421

4. Discussion and Results

The purpose of the study was to develop an attitude scale towards the multi-grade classrooms. The development of the scale consisted of 5 stages. These stages are teachers' compositions on the multi-grade classrooms, constituting item pool from the compositions, experts' ideas and developing final draft of the scale, applications of the scale to 205 teachers, reliability and factor analysis.

The 43 items scale was found to measure 6 dimensions of the multi-grade classrooms. Factor analyse was performed for the Attitude Scale towards the Multi-Grade Classrooms to explore factor structures and reliability analysis for each emerged factors. This study is different from other studies in terms of development of attitude scale towards the multi-grade classrooms.

Factor 1: Positive Beliefs in Multi-Grade Classrooms (items: 5th, 7th, 9, 11th, 13th, 15th, 17th, 21th and 23th). Factor 2: Negative Thoughts on the Multi-Grade Classrooms (items: 4th, 6th, 8th, 10th, 12th, 14th, 24th, 32th, and 40th). Factor 3: Contributions of the Multi-Grade Classrooms on Students (items: 1st, 33rd, 35th, 37th, 41st and 45th) Factor 4: Being Eager for the Multi-Grade Classrooms (items: 19th, 29th, 31st, 43rd, 47th, and 49th). Factor 5: Attaching No Significance to the Multi-Grade Classrooms (items: 2nd, 16th, 18th, 20th, and 22th) Factor 6: Apprehension to the Applications of Multi-Grade Classroom (28th, 30th, 34th, 36th, 38th, 44th and 50th).

Factor analysis with principle components method revealed 6 factors behind the attitudes towards the multi-grade classrooms which explain 44,983 of the total variance. Besides reliability analysis with Cronbach alpha coefficients varied between 0.817 and 0.681 also total Cronbach alpha coefficient was 0.81. These results show that the attitude scale towards the multi-grade classrooms can be used to determine their attitudes towards the multi-grade classrooms. The attitude scale which was developed in this study will fill the gap in the literature related to Multi-Grade Classrooms. Followed by the additional validation studies, the AMC will serve as a valuable tool for researchers to assess teachers' attitude towards Multi-Grade Classrooms.

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