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## The Effects of Mosaic Based Approach on Involvement Levels of Children \*

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**Abstract:** This study was conducted to explore the effects of mosaic based approach on children's involvement levels. In this study, experimental design with pre-test post-test retention control groups was adopted. A total of 52 children from two pre-schools formed the sample of this study. A total of 26 children, 11 girls and 15 boys, attending first pre-school in the afternoon formed the experimental group, and total of 26 children, 11 girls and 15 boys, attending second pre-school in the afternoon formed the control group. In this experimental design, "General Information Form" to collect information about the children and parents together with the Turkish adaptation of "Leuven Involvement Scale for Young Children" to assess children's involvement levels. Children in the experimental children group received mosaic-based instruction 3 days weekly, for approximately 4 hour each day, for a total of 10 weeks. The data were analyzed by using the Mann Whitney U, Friedman's Two-Way ANOVA Test and Wilcoxon Signed Rank Test. The results showed that mosaic-based approach created a significant difference in the involvement levels of experimental group respectively ( $p < 0.05$ ).

**Keywords:** *Involvement, mosaic approach, preschool education.*

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### Introduction

Recently, child-centered applications are becoming important in educational institutions to support different developmental areas and life skills of pre-school children (Pascal & Bertram, 2009). One of the methods that consider views of children regarding educational institutions is the mosaic approach. The mosaic approach is used for creating an environment that reflects perspectives, views, and experiences of children regarding their educational institutions based on information obtained from different resources (Clark, 2007). The mosaic concept involves children combining information obtained from different methods and resources regarding their opinions, and experiences (Clark, 2010).

The mosaic approach was developed by Peter Moss and Alison Clark based on a research conducted in England between 1999-2000. In the mosaic approach, tools and activities are used that enable children to comfortably express themselves with visual, physical, and oral methods (Clark, 2001). In this approach, in addition to traditional activities such as observations, and interviews with children, parents, and teachers, activities that require active participation of children such as camera use, album-map creation, and in-school tours are included (Clark, 2011). Additionally, in the mosaic approach, it is emphasised to apply a general framework based on views of educators and parents and developing listening processes within pre-school educational institutions (Clark, McQuail & Moss, 2003). The mosaic approach consists total of three stages. In the first stage, adults and children collect information from different sources. In the second stage, this information obtained at the first stage are shared and interpreted. Children and teachers should effectively participate to this stage. In the third stage, adults try to answer "what can change or stay the same after this process?" with children and make necessary adjustments (Clark & Moss, 2011).

Since the basis of mosaic approach is views and experience of pre-school children, it is important to support the participation process of children in educational institutions and develop a child-centered approach. Kanyal and Cooper (2012) stated that this approach provides important clues to teachers regarding how children can actively participate to adjusting learning environment and application planning. In the literature, there are studies regarding the mosaic approach in organising playing areas (Clark & Moss, 2005), motivation of children towards reading (Fiedler, 2012), and the participation process of children in open playing areas (Waller, 2014).

\* This study was written based on doctoral dissertation of the first author entitled "The Effects of Mosaic and Project Based Approaches on Children's Involvement Levels".

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In the Ministry of National Education, Pre-School Education Program applied in Turkey, it is stated that teachers should provide opportunities to children to plan, organise, and apply as well as actively participate in activities and select those activities (MEB, 2013). The mosaic approach supports effective inclusion of children in pre-school educational institutions in participation and decision making processes (Clark, 2008). It can be stated that active positioning of children and support for participation process are common properties of Ministry of National Education, Pre-School Education Program (2013) and the mosaic approach. Based on this fact, there is a need to study and analyse the effects of the mosaic approach based education on involvement level of children. The purpose of this study is to analyse the effects of the mosaic approach based education on involvement level of children in pre-school educational institutions.

## Methodology

### *Research Design*

In this study, experimental patterns with pre-test post-test retention control groups was adopted and 2x3 mixed pattern was applied. Mixed patterns are also referred to as split-plot factorial patterns and the effects of dependent variables are reduced to at least two variables. One of these variables contains different experimental operation conditions while other variables contain repetitive measurement on different time (Buyukozturk et al., 2010).

### *Sample*

The population of this study was five-year old children in independent pre-schools connected to the Ministry of National Education at Afyonkarahisar city in 2016-2017 academic year. The purposeful sampling method was adopted to create sample of this study. To generate the sample, kindergartens listed by Afyonkarahisar Ministry of National Education were analysed and researchers conducted interviews with school administrators and teachers. While selecting pre-schools in experiment and control group, similar social and physical conditions, previous mosaic approach based education application, and voluntary basis participation were considered. Based on these criteria, a total of 52 children from two kindergartens formed the sample of this study. A total of 26 children, 11 girls and 15 boys, attending first kindergarten in the afternoon formed the experimental group, and total of 26 children, 11 girls and 15 boys, attending second kindergarten in the afternoon formed the control group. Additionally, to prevent children from influencing each other, different schools were selected for experimental and control group.

It can be seen that in the experiment and control groups, 42.31% of children were girls and 57.69% were boys. In the experimental group, 26.92% were first children, 46.15% were second children, 26.92% were third children. In the control group, 53.85% were first children, 30.77% were second children, and 15.38% were third children. It was identified that parents of 88.46% children in experimental group and all in control group were together. In experiment group, 3.85% of mothers were 29 years old or below, 92.31% were between 30-39 years old, 11.54% were between 40-49 years old while in control group, 3.85% of mothers were 29 years old or below, 84.62% were between 30-39 years old, 11.54% were between 40-49 years old. In experimental group, 61.54% of fathers were between 30-39 years old, 38.46% were between 40-49 years old while in control group, 73.08% were between 30-39 years old, 26.92% were between 40-49 years old. 92.31% of children in experiment group and 88.46% of children in control group have previously attended pre-school educational institutions.

### *Data Collection*

*General Information Form:* To collect information about children and parents participating in this study, general information form consisting of 9 questions was prepared by researchers. The General Information Form included questions about date of birth, gender, birth order, number of siblings, previous pre-school education, age of mother and father, education status of mother-father and the occupation of mother-father of children.

*Leuven Involvement Scale for Young Children-LIS-YC:* The Leuven Involvement Scale for Young Children Scale was developed by Laevers (1994) to determine involvement level of children between 3-6 years old. The children involvement scale is an observation scale that measured involvement level of children ranging from 1 (extremely low) to 5 (extremely high). This scale consists of 2 sections which are properties to be considered related to involvement level and involvement levels. In this scale, while determining involvement level of children, indicators that needs to be considered are given as concentration, energy, complexity and creativity, facial expression and posture, persistence, attention, reaction time, language, and satisfaction. These properties provide important clues to determine involvement level. Under this scale, these properties are not scored (Laevers, 2005).

Based on this form, when involvement levels of children were determined, observation should be conducted within timeframes (Laevers, 1994). Validity and reliability study of Leuven Involvement Scale for Young Children (LIS-YC) was conducted by Akyol and Erkan (2017) and it was determined that all items were necessary and content validity was obtained. Coherence between evaluators were calculated with Cohen Kappa coefficient, and coherence between observers were  $\kappa > 0.7$  high level.

### *The Mosaic Approach Based Education Programme*

The Mosaic approach provides important clues to teachers regarding how children can actively participate to adjusting learning environment and application planning. The purpose of mosaic approach based education program is to

develop involvement level of five year old children. Before developing mosaic approach based education program, Ministry of National Education, Pre-School Education Program (2013) was utilised to gain and parameters regarding support of children involvement level were identified. Mosaic approach based education program was prepared on determined gain and indicators by considering age group, interest, needs, and development stage of children. When creating learning processes in mosaic approach based education program, stages in mosaic approach were considered, and first, second, and third stages were included in each determined theme.

While preparing the mosaic approach based education program, including activities that will develop involvement level of children were considered. Under the content of mosaic approach based education program, Turkish activities, art activities, play activities, movement activities, drama activities, music activities, science and mathematics activities were included. The Mosaic approach based education program was applied to a total of ten weeks and for three days per week. Themes in the Mosaic approach based education program were determined by emphasising easy expression of opinions and experience in education environment by children. In education program, total of three themes were included which were learning centres, activity types, and play areas. Under each theme, three separate education plans were created. After preparing mosaic approach based education program, this program was presented to expert view of 7 different academicians and experiences pre-school teacher who works on different approaches in pre-school education. Experts were asked to evaluate compliance of education program to predetermined objectives, compliance of gains to purpose of program, sufficiency of learning processes, appropriateness and sufficiency of materials, appropriateness of objective distribution and were asked to mark as “suitable”, “partially suitable”, “unsuitable” and state their ideas in “explanation” section. Criticism and recommendations of experts on education program were considered and necessary corrections were applied. After making necessary corrections on the program, first theme in the education program was applied to five-years-old children in a private pre-school under Ministry of Family and Social Policies between 8-19 August 2016 at Afyonkarahisar city as a pilot study. Final corrections were made based on pilot application and program was shaped.

#### *Pre-Test Application*

To obtain the quantitative data from this study, Leuven Involvement Scale for Young Children pre-test, post-test, and retention test was applied to experiment and control group. Pre-test was applied by researcher between 26-30 September 2016 in class environment. Researcher were in the classroom during play time and activities conducted in daily education flow and made observations. Observations that were applied as pre-test to each children approximately took 55-60 minutes. Observations results were recorded separately to forms prepared separately for each children.

After pre-tests were applied, “Mosaic Approach Based Education Program” was applied to experiment group between 03 October 2016-09 December 2016. Children in experiment group were applied mosaic approach based education program for total of 120 hours as 10 weeks, 3 days per week, 4 hours per day. Ministry of National Education, Pre-School Education Program (2013) was applied to control group children. The Mosaic approach based education program was applied within class, interior of school building, school garden, and tours areas outside school. Under the scope of mosaic approach based education program, first theme lasted for 9 days, second theme lasted for 11 days, and third theme lasted for 10 days.

#### *Post-Test Application*

Leuven Involvement Scale for Young Children was applied to experiment and control group children under same environment and conditions of pre-test applied between 12-16 December 2016.

#### *Retention Test Application*

To test retention of education four weeks after post-test application, the Leuven Involvement Scale for Young Children was applied to all children in experiment group between 16-20 January 2017.

#### *Analyzing of Data*

During data analysis of the scales, normality, homogeneity, and independency were analysed (Green & Salkind, 2008). Data collected with Leuven Involvement Scale for Young Children and the General Information Form were evaluated with appropriate statistical methods. Data obtained from this study were analysed with SPSS 20 package program. While analysing normal distribution of variables, Shapiro Wilks was adopted due to unit numbers. While results were interpreted, significance level was considered as 0.05 where  $p < 0.05$  indicated that variables had no normal distribution and  $p > 0.05$  indicated normal distribution of variables (Buyukozturk et al., 2010). Since there is no normal distribution when analysing variables with more than two dependent variables, Friedman’s Two-Way ANOVA was used. In case of significant differences, Multiple Comparison Test was adopted to identify variables that showed difference. While analysing differences between groups, when variables showed no normal distribution, Mann Whitney U test was adopted. While analysing difference between two dependent variables, when there is no normal distribution, Wilcoxon Test was applied. While results were interpreted, significance level was considered as 0.05 where  $p < 0.05$  indicated that variables had no normal distribution and  $p > 0.05$  indicated normal distribution of variables (Buyukozturk, 2008).

### Findings

Mann Whitney U results for “Leuven Involvement Scale for Young Children” pre-test scores of experiment and control group were given in Table 1.

Table 1. Mann Whitney U Results For “Leuven Involvement Scale for Young Children” Pre-Test Scores of Experiment And Control Group

Pre-test Scores	Group						Mann Whitney U Test		
	n	X	Median	Min	Max	sd	Mean Rank	H	p
Experiment	26	1.93	2	1	2.6	0.35	40.58	2.118	0.347
Control	26	1.97	2	1.6	2.6	0.35	41.31		
Total	52	1.92	1.9	1	2.6	0.36			

When Table 1 was analysed for Leuven Involvement Scale for Young Children pre-test scores, average score of experiment group children was 1.93, and average score of control group children was 1.97. There was no statistically significant difference between Leuven Involvement Scale for Young Children pre-test scores of experiment and control group [(H=2.118);  $p>.05$ ].

Mann Whitney U results for “Leuven Involvement Scale for Young Children” post-test scores of experiment and control group were given in Table 2.

Table 2. Mann Whitney U Results For “Leuven Involvement Scale for Young Children” Post-Test Scores of Experiment and Control Group

Post-test Scores	Group						Mann Whitney U Test		
	n	X	Median	Min	Max	sd	Mean Rank	H	p
Experiment	26	3.19	3.2	2.6	3.8	0.31	46.13	48.019	0.001
Control	26	2.42	2.4	1.6	3.2	0.32	14.92		
Total	52	3.02	3	1.6	4.4	0.58			

When Table 2 was analysed for Leuven Involvement Scale for Young Children post-test scores, average score of experiment group children was 3.19, and average score of control group children was 2.42. There was statistically significant difference between Leuven Involvement Scale for Young Children post-test scores of experiment and control group [(H=48.019);  $p>.05$ ]. This results are in favour of experiment group.

Friedman’s Two-Way ANOVA test results for “Leuven Involvement Scale for Young Children” post-test scores of experiment group were given in Table 3.

Table 3. Friedman’s Two-Way ANOVA Test Results for “Leuven Involvement Scale for Young Children” Post-test scores of Experiment Group

Experiment Group	Group						Friedman's Two Way ANOVA	
	n	X	Median	Min	Max	sd	Mean Rank	Chi Square p
Pre-test	26	1.93	2	1	2.6	0.35	1	43.221 0.001
Post-test	26	3.19	3.2	2.6	3.8	0.31	2.4	
Retention Test	26	3.23	3.2	2.6	3.8	0.3	2.6	

1-2 1-3

When Table 3 was analysed, “Leuven Involvement Scale for Young Children” pre-test score average of experiment group children was 1.93, post-test score average was 3.19, and retention test score average was 3.23. There was statistically significant difference between pre-test, post-test, and retention test scores of experiment group [ $p<.05$ ]. Post-test and retention test applied four weeks after post-test on experiment group that was applied mosaic approach based education program showed higher average scores compared to pre-test average scores. Score increase in retention test that was applied four weeks after the post-test showed that effect of mosaic approach based education program proceeded.

Wilcoxon Signed Rank test results for “Leuven Involvement Scale for Young Children” pre-test, post-test scores of control group were given in Table 4.

Table 4. Wilcoxon Signed Rank Test Results for “Leuven Involvement Scale for Young Children” Pre-Test/Post-Test Scores of Control Group

Control Group	Group						Wilcoxon Test		
	n	X	Median	Min	Max	sd	Mean Rank	z	p
Pre-test	26	1.97	2	1.6	2.6	0.35	11.38	-3.319	0.001
Post-test	26	2.42	2.4	1.6	3.2	0.32	13.89		

When Table 4 was analysed, “Leuven Involvement Scale for Young Children” pre-test score average of control group children was 1.97, post-test score average was 2.42. There was statistically significant difference between pre-test, and post-test scores of control group [ $p < .05$ ].

### Discussion

Based on Table 1, there was no statistically significant difference between pre-test scores of experiment and control group. Kaptan (1998) stated that in studies with experimental pattern, pre-test scores of experiment and control group should be similar as possible. Based on this fact, it can be stated that children in experiment and control group have similar involvement levels.

Based on Table 2, it was determined that there was statistically significant difference between post-test scores of experiment and control groups. Accordingly, it can be stated that the mosaic approach based education program increased involvement level of children in experiment group. Themes in the mosaic approach based education program were determined by emphasising easy expression of opinions and experience of children regarding learning environment. While preparing the mosaic approach based education program, age, interest, needs, and developmental processes of children were considered and activities to develop involvement levels of children was emphasised. As a result of this, it can be stated that the “Leuven Involvement Scale for Young Children” post-test scores of children in experiment group increased. Supportive and visual methods adopted in participation process of the mosaic approach greatly contribute to expression of opinions and experience of children (Clark, 2011). Coleyshaw, Whitmarsh, Jopling, and Hadfield (2010) considered stages of mosaic approach to determine opinions of children regarding pre-school educational institutions and develop quality of these institutions. When opinions of children were analysed, it was stated that options presented to children should be increased, participation process should be directed, learning environment and activities should be organised with children to increase the quality of pre-school educational institutions. Baird (2014) used all stages of mosaic approach to investigate opinions and experience of young children in pre-school educational institutions and home environment. It was found that children easily expressed their opinions and experiences during mosaic approach based education and expressed that they enjoyed spending time in school and home environment in group activities as well as individuals shares. Levy and Thompson (2015) adopted mosaic approach to analyse attitudes and participation to reading process of 5-6 years old children. In this study, it was found that stages and processes in mosaic approach significantly supported participation of young children. Skrobot (2016) adopted mosaic approach to analyse opinions and experience of 5-6 years old children group in pre-school educational institutions regarding open playing areas. It was found that children mainly enjoyed game materials that developed coarse motor skills in open playing areas and their playing time increased when new materials are added. Additionally, it was emphasised that the mosaic approach was effectively used for determining opinion and experience of children. Positive children involvement results for mosaic approach based education on pre-school children of these studies support the findings in this study.

When Table 3 was analysed, there was statistically significant difference between pre-test, post-test, and retention test scores of experiment group. These findings can explain effects of mosaic approach based education on involvement level of children. A study by Bowden-Clissold (2013) applied mosaic approach to determine opinion and experience of pre-school children in educational institutions in England. Popa and Stan (2013) adopted first stage of mosaic approach, photograph taking to analyse opinions and experience of children in learning environment. In that study, photographs by children were analysed and it was seen that children especially enjoyed spending time in open playing areas and aesthetic values materials in school attracted their attention.

Based on Table 4, there was statistically significant difference between pre-test, and post-test scores of control group. Higher post-test scores of children in control group can be explained by the fact that children were involved in development process and Ministry of National Education, Pre-School Education Program” supported involvement level of children. However, when pre-test and post-test score averages of children in control group evaluated in terms of Leuven Involvement Scale for Young Children involvement level, involvement level of these group increased from extremely low level to low level. On the other hand, involvement level of experiment group children that was applied with mosaic approach based education increased from low level to medium-high level.

When obtained results were analysed, there was no statistically significant difference between experiment and control group in Leuven Involvement Scale for Young Children pre-test scores while there was statistically significant difference in Leuven Involvement Scale for Young Children post-test scores. When obtained results were analysed, it was found that mosaic approach based education increased involvement level of children in experiment group.

### Conclusion and Recommendations

When Leuven Involvement Scale for Young Children pre-test, post-test scores, and retention test scores of children in experiment group were analysed, there was statistically significant difference between pre-test, post-test, and retention test score averages of experiment group. It was found that post-test and retention test average scores of experiment group were higher than pre-test average scores. When Leuven Involvement Scale for Young Children pre-test, post-test

scores of children in control group were analysed, there was statistically significant difference between pre-test and post-test averages of control group.

Following recommendations can be presented based on results obtained from this study:

- Experimental studies that analyse the effects of mosaic approach based education on involvement level of children and on different developmental skills can be analysed.
- Mosaic approach based education program can be prepared for younger children and effect of these programs on children involvement level can be measured.
- International comparative study that analysis effects of mosaic approach based education on children can be planned.
- Training, seminars, and workshops that considers mosaic approach can contribute to occupational development of pre-school teachers.
- Pre-school teacher may plan activities to support children involvement level and different development fields based on mosaic approach based education and apply these activities.

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