

## EXAMINATION OF THE AFFECT OF MONTESSORI EDUCATION ON LANGUAGE DEVELOPMENT OF PRE-SCHOOL CHILDREN

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### ABSTRACT

*At this research, the effects of Montessori Education to language development of pre-school children were examined. The sampling population of the research constituted of 35 children, 14 males and 21 females. Of the sampling population, 17 children participated to Experiment and 18 children participated to Control Group.*

*During the research, the pattern with pretest-posttest control group was used. In order to get information on children and their families who participated in the research, "Personal Data Form" was used. To measure the language development of the children, Descoedres Language Test, Dictionary and Language Test, Peabody Picture-Vocabulary Test were used. During the analysis of data obtained from experimental process, Two-Way ANOVA for Repeated Measures on One Factor, Paired Samples T Test, Mann-Whitney U Test and Kruskal Wallis Test were used.*

*According to the result of research, a significant difference was found between language development of pre-school children who receive education with Montessori Method and also education according to The Ministry of Education, Preschool Education Program.*

**Keywords:** Montessori Method, Montessori Education, Language Development, Pre-school Education, Pre-school Children.

### INTRODUCTION

Maria Montessori who headed out from her studies during the medical education and assistantship and her observations in the first kindergarten which she opened for the children of poor families living in San Lorenzo region in Rome in 1907 developed a universal method that base children, value their needs and personality development, aim learning instead of teaching, internalize the view of providing children's development as a whole in every aspect, place education on the concept of freedom at the end of her studies which took many years (Pollard, 1996; Topbaş, 2004; Korkmaz, 2006; Çakıroğlu Wilbrandt, 2008; Durakoğlu, 2011; Biswas-Diener, 2011; Ekici, 2015).

The goal of Montessori Method is helping child's potential maximize (Vuslat & Akyol, 2006). For this purpose, Montessori realized that children are not comfortable in the "oversized" world of adults and laid the foundations of Montessori Method by forming environments where children can easily identify their own study areas and produce independent attitudes and ideas (Seldin, 2007; Soydan, 2013; Byun, Blair & Pate, 2013). Therefore, the child learns by using the materials produced for her/him and the use of material depends on the child's capacity of learning. So children learn many things by correctly interacting at right time without even realizing. This learning is concrete and base child's free study in the direction of her/his own desires (Hainstock, 1997; Topbaş, 2004; Seldin, 2007; Çakıroğlu Wilbrandt, 2009; Yıldırım Doğru, 2009; Güral, 2015).

Learning occurs by behaving directly through Montessori materials with active learning in Montessori education that is based upon children's learning by directly interacting with environment (Arslan, 2008; Gülay & Önder, 2011; Büyüktaşkapu, 2012). Every material in the setting of Montessori education has a special difficulty and teaches a special ability. The child can switch to the other material only if s/he masters in an activity. Materials which are appropriate for children's ages are spectacularly displayed in open selves and each material includes the control of mistake. Therefore the child is able to evaluate his/her own accomplishment without the requirement of evaluation by the adult (Korkmaz, 2006; Yıldırım, Doğru, 2009; Danişman, 2012; Tuncer, 2015).

It is important to support language development and literacy in Montessori Method. Specially prepared materials for children's language training are used as in the other fields and language activities are heavily implemented by the usage of these materials. The child learns new vocabulary in company with new concepts and meanings within a natural process by using these materials (Kayılı, Koçyiğit & Erbay, 2009).

The philosophy of Montessori, which is accepted as the integration of literacy allows children to learn personally. Montessori is the first supporter of the idea that firstly concrete writing comes then the writing that requires making sense comes. Preparation for literacy in Montessori Method begins with the development of muscles required to hold and use the tool for writing. Then literacy and accordingly language abilities develop accordantly with the use of studies of line, study of sound with miniature objects, embossed letters, matching cards, upper and lower cases and colored reading books (Korkmaz, 2006; ÇakıroğluWilbrandt, 2008; Durakoğlu, 2010).

We realized that the method supports many features in a positive way especially as individualization, freedom of choice, concentration, and independence, problem solving abilities and competence in basic abilities when we investigate the impacts of Montessori learning environment on child's development areas (Korkmaz, 2006; Koçyiğit & Kayılı, 2008; Kayılı & Arı, 2011) However it is seen that there is limited number of studies when the influences of Montessori Method on language development are investigated. Thus the study is important in terms that it presents the impacts of Montessori education on the language development of preschoolers and also it arranges the education programs.

## METHOD

This research has been planned to investigate the effects of Montessori education on preschoolers' language development. Pre-test-posttest, and control group design have been used. The study group of the research contains 35 children, 14 of which are boys and 21 of which are girls. 17 of the children forming the sample have been included in the experimental group and 18 of them have been included in the control group.

"Personal Information Form" has been used to learn about the children and their families who participated in the research and Descoudres' Vocabulary Test, Vocabulary and Language Test and Peabody Picture Word Test have been used to measure children's language development.

**Descoudres Vocabulary Test (DVT):** The test including all kinds of words from adjectives and infinitives encountered in daily vocabulary to colors was developed by Descoudres and then adjusted to Turkish (Davaslıgil, 1985). It is individually implemented to children between the ages of four-six. There is no time limitation in the practice. The extent of vocabulary test is formed by nine sub-tests and includes 106 items in total (Erdoğan, vd., 2005).

**Vocabulary and Language Test (VLT):** The test whose main form was developed by Limbosh and Wolf in 1968 has been adjusted to Turkish. The pictures of objects which are not proper for Turkish Culture in pre-study made under the presidency of Ugurel-Semin. The test measuring language ability and vocabulary is implemented for children between the ages of four-six. There is no time limitation in the practice. The test includes two sub-tests and 42 items in total (Öner, 2006).

**Peabody Picture-Word Test (PPWT):** The original form of this test developed by Dunn in 1965 is in English and was adapted to Turkish by Katz, Onen, Demir, Uzlukaya and Uludag in 1974 (Öner, 2006). There is no time limitation in the test implemented for children between the ages of 2-12. The test which can be answered in about 15 minutes is individually implemented. In the extent of the test there are questions aiming to determine development of vocabulary with pictures. It is formed by 100 cards and record forms each of which includes four pictures (Erdoğan, vd., 2005).

Montessori education program was implemented for 17 children chosen for experimental groups in the study during about seven weeks from 9.00 am to 1.00 pm on weekdays within the context of “Inclusive Education Project for Children who are and are not Disabled in Preschool” in addition to children’s experiences in their own environments. 18 children from Abant Izzet Baysal University Pilot Kindergarten was included in the control group to test the efficacy of this practice and children taking place in the control group continued their education according to Ministry of National Education Early Childhood Education Programs.

Two-factor ANOVA for repeated measures on single-factor, Mann Whitney U-Test and Kruskall Wallis test were used in the analyses of data obtained from experimental procedure in the research.

**FINDINGS AND DISCUSSION**

Pre-tests implemented for experimental group in the study conducted for the purpose of investigating the effect of Montessori education on preschoolers’ language development were performed one week before the education while post-tests were performed at the end of seven-week education period. Pretest and posttest measures of the control group were carried out in parallel dates with experimental group.

The findings were approached under two titles:

- i. The Effect of Montessori Education Program.
- ii. The Relationship between Sex and Age Variables and the Points of Language Tests taken by Children who were Included in the Experimental Group

**The Effect of Montessori Education Program (Pretest-Posttest)**

Table 1. DVT Average and Standard Deviation Values of Children Participating in the Sample

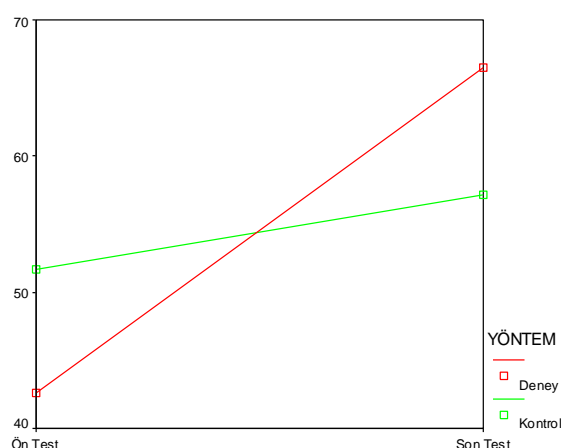
GROUP	PRE TEST			POST TEST		
	N	$\bar{x}$	S	N	$\bar{x}$	S
Experiment	17	42.64	28.88	17	66.52	18.89
Control	18	51.66	18.49	18	57.16	19.62

When Table 1 is investigated pre-test points, posttest points of children participating in the Experiment Group of Montessori Education Program is respectively  $\bar{x}$ =42.64 and  $\bar{x}$ =66.52;

average points of children participating in the traditional education program is  $\bar{x}=51.66$  in pre-test and  $\bar{x}=57.16$  in posttest. According to the table it is observed that DVT points have significantly increased from pre-experiment to post-experiment.

Two-factor ANOVA has been made to see whether said changes observed in posttest compared to pre-test DVT points of children participating in two different education programs are meaningful or not. Thus it has been found that DVT points of children participating in the two separate education programs has a meaningful difference from pre-test to posttest; the common effects of being in different procedure groups and repeated measures factors are meaningful on DVT points [ $F_{(1,33)}=13.45, p<.01$ ].

The change of DVT pre-test and posttest points of groups are seen in the line chart (Shape 1).



Shape 1. Method and Group-based Line Chart of Children Included in the Sample

Table 2. VLT Average and Standard Deviation Values of Children Included in the Sample

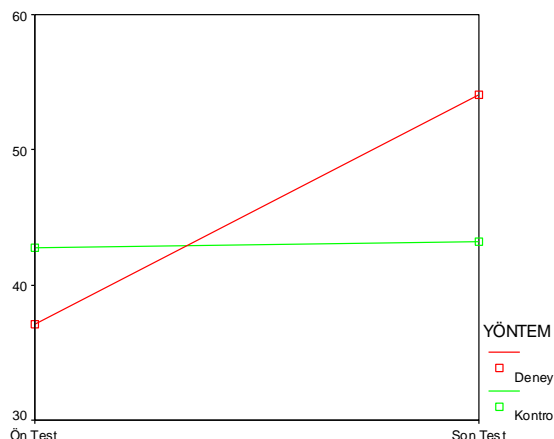
GROUP	PRE TEST			POST TEST		
	N	$\bar{x}$	S	N	$\bar{x}$	S
Experiment	17	37.11	25.00	17	54.05	17.02
Control	18	42.72	18.04	18	43.22	17.80

When Table 2 is investigated it is seen that while pre-test average points of children in the experiment group is  $\bar{x}=37.11$ , this rate has increased to  $\bar{x}=54.05$  in posttest. On the other hand, children in the control group acquired  $\bar{x}=42.72$  in pre-test and  $\bar{x}=43.22$  in posttest. According to the table it is observed that VLT points of children who participated in the Montessori Education Program posttest have significantly increased.

When we look at the two-factor ANOVA results about whether said changes observed from pre-experiment to post-experiment in VLT points are meaningfully different or not, the change observed in repeated measures of children about the education program has meaningfully differed among procedure groups [ $F_{(1,33)}=16.93, p<.01$ ].

This finding shows that the change observed from pre-experiment to post-experiment in VLT points of children participating in Montessori Education Program is different that the change observed in VLT points of children in the control group.

The change in VLT pre-test and posttest points of groups is seen in the line chart (Shape 2).



Shape 2. Method and Group-based Line Chart of Children Included in the Sample

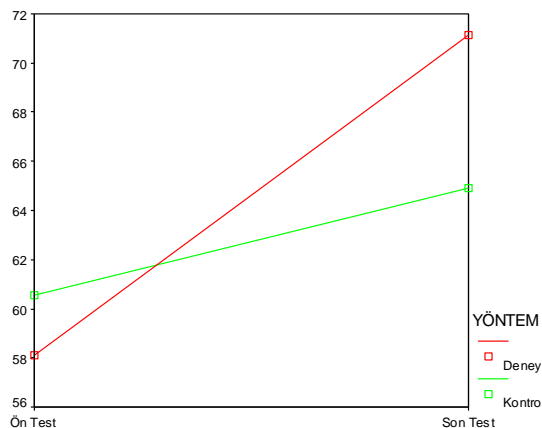
**Table 3. Peabody Picture Word Test Results Average and Standard Deviation Values of Children Included in the Sample**

GROUP	PRE TEST			POST TEST		
	N	$\bar{x}$	S	N	$\bar{x}$	S
Experiment	17	58.11	16.91	17	71.11	14.05
Control	18	60.55	12.37	18	64.88	14.72

When Table 3 is investigated pre-test points, posttest points of children participating in the Experiment Group of Montessori Education Program is respectively  $\bar{x}=58.11$  and  $\bar{x}=71.11$ ; average points of children participating in the traditional education program is  $\bar{x}=60.55$  in pre-test and  $\bar{x}=64.88$  in posttest. According to table, while there is a significant increase from pre-test to posttest in Peabody Picture Word Test of the experiment group, it has been recorded that children in control group there is a decrease instead of increase.

When two-factor ANOVA results about whether these changes observed from pre-experiment to post-experiment are not meaningfully different is investigated, the common effects of experiment and control group and pre-test posttest factors on Peabody Picture Word Test points have found to be meaningful [ $F_{(1,33)}=13.80, p<.01$ ].

The change in Peabody Picture Word Test pre-test and posttest points of groups in line chart is seen (Shape 3).



Shape 3. Method and Group-based Line Chart of Children Included in the Sample

According to these findings, it is observed that especially children in experiment group participating Montessori Education Program are more successful in posttests of Descoedres' Vobaulary Test, Vocabulary and Language Test, Peabody Picture Word Test. In this condition, it is possible to say the education program implemented for only two months made children acquire better experiences about language abilities.

***The Relationship between the Points Acquired from Language Testt by Children Included in Control Group and Sex-Age Parameters***

In Table 4, Mann Whitney U-test results of pre-test and posttest points acquired from language tests by children in the experiment group according to sex parameter is seen.

**Table 4. U-Test Results of Experiment Group Pre-Test and Posttest Points according to Sex**

<i>Sex</i>	<i>N</i>	<i>Rank Average</i>	<i>Rank Sum</i>	<i>U</i>	<i>p</i>
<i>Descoedres Vocabulary Test</i>					
Girl	12	9.04	108.50	29.50	.958
Boy	5	8.90	44.50		
<i>Vocabulary and Language Test</i>					
Girl	12	9.75	117.00	21.00	.336
Boy	5	7.20	36.00		
<i>Peabody Picture Word Test</i>					
Girl	12	7.71	92.50	14.50	.101
Boy	5	12.10	60.50		

It is understood from Table 6 that there is not a meaningful difference (U=29.50,U=21.00,U=14.50,p>.05)in pre-test and posttest points acquired from language tests by children participating in Montessori Education Program in terms of sex. These findings point that sex is not an effective factor in the langauge development levels of children. however when rank averages have been taken into consideration, it has been determined that points of pre-test and posttest of girls from Descoedres Vocabulary Test and Vocabulary and Language Test are higher; pre-test and posttest points of boys in Peabody Picture Word Test are higher that girls.

When Kruskall Wallis Test results of pre-test and posttest points acquired from language tests by children in the experiment group is investigated according to age parameter, it is seen that the points children participating in the experimental study got from Descoedres Vocabulary Test [ $X^2(3)=6.46, p>.05$ ], from Vocabulary and Language Test [ $X^2(3)=7.16, p>.05$ ] and from Peabody Picture Word Test [ $X^2(3)=.71, p>.05$ ] do not meaningfully defer according to children's ages.

**RESULT AND SUGGESTIONS**

In conclusion of the research; the change observed in Descoedres Vocabulary Test, Vocabulary and Language Test and Peabody Picture Word Test of children participating in Montessori Education Program from pre-experiment to post-experiment has been determined

to be meaningfully different than the change observed in the points of children in control group. Also, it has been determined that pre-test and posttest points acquired in language tests by children participating in Montessori Education Program are not meaningfully different in terms of sex, accordingly when rank averages are taken into consideration pre-test and posttest points of girls from Descoeudres Vocabulary Test and Vocabulary and Language Test are higher; pre-test and posttest points of boys from Peabody Picture Word Test are higher than girls' points.

In direction of these results;

It can be suggested that the education programs implemented in preschool education institutions should be prospered by using Montessori Method and materials,

Pre-service and in-service symposiums and workshops should be arranged for preschool teachers and teacher candidates about Montessori Method, education setting, materials and practices,

More elaborate experimental studies should be made about the effectiveness of Montessori Method towards language development in different ages.

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