

The effectiveness of the Montessori training programme for mothers: A2-year follow-up

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Abstract

It was the aim of this study to follow-up for 2 years the mathematics and daily living skills of children whose mothers participated in the Montessori training programme for mothers (MTPM) and to determine whether the children still maintained these skills 2 years after the intervention. In 2016–2017, the MTPM was administered to the mothers of 4–5-year-old children who received Montessori education at preschool. The first follow-up was carried out 6 months after the training programme was completed; the second follow-up took place 6 months after the first follow-up and the third one was carried out 12 months after the second follow-up. Eleven children included in the study group in the 2016–2017 school year were all reached. ‘Basic School Skills Inventory 3 – Mathematics and Daily Living Skills subtests – Age 4–8 years’ were used for data collection. The data were provided by the teachers. Statistical analysis of the data was carried out using Wilcoxon’s signed-rank test and Statistical Package for the Social Sciences 20.0 data analysis package programme. The results showed that the MTPM maintained its effect on mathematics and daily living skills of the experimental group children 24 months after the implementation of the programme.

Keywords: Montessori training programme for mothers, mathematics, daily living skills.

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1. Introduction

From the day they are born, children cannot remain insensitive to their mothers, their closest caregivers, and to the environment they live in. A close and warm relationship develops between a mother and her child during the course of childhood. A mother might behave in an impatient, aggressive and disciplinary manner, and may even scold her children. But for the child, however, the mother is still the centre of the family (Chang, Schwartz, Dodge & McBride-Chang, 2003). Montessori criticises parental attitudes, beliefs and behaviours contending that ‘children are left at the mercy of their parents’ dictatorial desires and instincts; whereas when children come into the world, they also bring along a power to correct the wrongs of past generations, a new breath to change the world’ (Montessori, 2016). It is also an undeniable fact that an adult is likely to interfere with such an exuberant development of a child. In such cases, the child will feel incomprehensible, which will possibly result in deviations in the child (Cakiroglu Wilbrandt, 2019). Montessori argues that ‘adults should give up regarding children as a being who has to obey their elders and as a pillow-like item to be carried when a baby, and adults need to realise that they have a secondary role in children’s development. They should attempt to understand children to help them’ (Montessori, 2016).

Although approaches to parenting education did not gain a scientific aspect till the 1960s, Montessori lectured in Vienna in 1923 in a series of conferences outlining her proposals for the Parent School, and her lectures were later published as *Il Bambino in Famiglia* (Montessori, 1923; URL, 1). The book is intended to be a guide to parents and educators for mental hygiene. It is seen in this book that Montessori and her educational approach criticise and care about the attitudes and behaviours of parents, especially of mothers towards their children (Montessori, 2017). Montessori demonstrates her belief in the significance of harmony between school and home in her conferences and practices (Montessori, 1965). The first teachers of the Children’s Houses (Case Dei Bambini) were the mothers of the children who came to school (Cakiroglu Wilbrandt, 2019). Montessori schools were created with particular emphasis on bridging the gap between school and home and making it a safe environment that parents can rely on to take care of children. Parents and teachers have shared goals, such as supporting and nurturing each child’s abilities and strengths. Benefiting from the harmonious teamwork between parent and teacher, the child will develop into a leader with self-confidence and a successful future (Bisceglia, 2014). It is now a well-known fact that the mothers in the family and the need for a school–family cooperation in education play a key role in children’s development. The Montessori training programme for mothers (MTPM) intends to accomplish this cooperation with various approaches of communication (Yildiz, 2019).

There is a body of research conducted in recent years reporting that the inclusion of parental studies in Montessori education contributes more to the development of children. In their study carried out to make connections between school and home environments to help parents gain a better understanding of the Montessori philosophy and to create more consistency for learning, Galindo and Sheldon (2012) found that children need to be supported in their home environment; the common themes from school are translated to the home setting more easily; a consistency occurs between school and home environments; and parents and teachers develop a healthy relationship to support the child. A study by Lillard and Jessen (2015) showed how the integration of the Montessori philosophy into the home setting will help children with self-discovery and formation. They remarked that developing a feeling of being a member of his/her family in early years helps the child enhance his/her personality and develop a positive attitude towards himself/herself. The Montessori philosophy proposes that a child should be independent and develop executive functioning skills at both home and in the classroom (Montessori, 2016). Based on this philosophy, as a result of parent education regarding ‘Montessori in The Home’, parents’ perceptions of the Montessori philosophy improved, and progresses were achieved in the morning drop-offs, and parents managed not to interfere with children working in the class (Bisceglia 2014). Irving (2017) concluded in her research that a small amount of effort in parent education can provide great rewards to parents, students and teachers. Whenever a child masters something, this mastery brings new opportunities. This way of

parenting calls for much more knowledge and thought than the parenting in which you do everything for your child, but its rewards are also much greater (Woo, 2014).

MTPM is a mother's education programme consisting of subjects underlined in the needs analysis conducted in 2015–2016 with mothers and teachers of preschoolers from Selcuk University Applied Nursery School (Yildiz, 2018). MTPM includes Montessori life, philosophy and principles, arrangement of the educational environment, communication and basic communication skills, Montessori materials and their properties, applications with practical life materials, the ability to prepare new materials related to practical life skills and applications with children. It also includes the introduction and application of sensorial materials, preparation of new sensorial materials and their applications with children at home, introduction and application of Montessori mathematical materials, preparation of new mathematics materials and applications with children at home and, finally, the evaluation of the MTPM studies with mothers (Yildiz & Cagdas, 2018, p. 144).

MTPM is not intended to convince families of Montessori education. Its actual purpose is to increase the effectiveness of Montessori education and philosophy, which provides guidance on the internal development and needs of the child inherent in Montessori philosophy, and to ensure the continuity and consistency of education between preschool institutions and mothers. Montessori education is related to understanding children's natural development process, personalised teaching and learning and helping them in this process. What Montessori schools offer consists of an individualised curriculum, Montessori material, uninterrupted work cycles, mixed age groups, educated teachers and well-planned classroom environment. Montessori education turns the child into a lifelong learner. Although MTPM follows improvements in maths and practical life skills while supporting children through mothers, it was prepared and implemented in order to establish a stronger interaction between the child and the mother and to provide an understanding that will encompass the whole family with a communication approach from child to mother and mother to child. This will be a real lifelong education process for all the individuals in the family.

The present study was undertaken to observe for 2 years the maths and daily living skills of the children whose mothers participated in the MTPM and to determine whether the effectiveness of the programme still existed. Accordingly, the following research questions were addressed:

1. In relation to the mathematics skills of the children whose mothers participated in MTPM,
 - a) Is there a statistically significant difference between children's post-test and first follow-up mean scores?
 - b) Is there a statistically significant difference between children's first and second follow-up mean scores?
 - c) Is there a statistically significant difference between children's second and third follow-up mean scores?
2. In relation to the daily living skills the children whose mothers participated in MTPM,
 - a) Is there a statistically significant difference between children's post-test and first follow-up mean scores?
 - b) Is there a statistically significant difference between children's first and second follow-up mean scores?
 - c) Is there a statistically significant difference between children's second and third follow-up mean scores?

2. Method

2.1. The design of a study

A longitudinal research design was employed in the current study to follow-up for 2 years the maths and daily living skills of the children whose mothers participated in the MTPM and to determine whether the effectiveness of the programme still existed. It is designed in a general survey model,

which intends to describe an existing situation as it is (Buyukozturk, 2019). The first follow-up was carried out after MTPM was administered to the mothers of 4–5-year-old children who received Montessori preschool education in 2016–2017; the second follow-up took place 6 months after the first follow-up and the third one was conducted 12 months after the second follow-up.

2.2. Participants

Participants of the study were 48–60-month-old Montessori children attending Ihsan Dogramaci Applied Nursery School affiliated to the Faculty of Health Sciences, Selcuk University. Control and experimental groups were formed in the 2016–2017 school year on the basis of the random cluster sampling method. All 11 children whose mothers joined the MTPM were reached.

The study sample included a total of 11 children (5 girls and 6 boys). Two children in the experimental group attended preschool institution and nine children attended primary school. Of these children, 27% were between 48 and 59 months old, 64% were between 60 and 71 months old and 9% were 72 months old or older. In the second follow-up, 9% of the children were between 48 and 59 months, 54.5% were between 60 and 71 months old and 36.5% were 72 months old or older. In the third follow-up carried out in 2019, 9% of the children were between 60 and 71 months old, 54.5% were between 72 and 83 months old and 36.5% were 84 months old and older. Demographics relating to the children are given in Table 1.

Table 1. Demographics

Gender	n	%	1st follow-up 2016–2017			2nd follow-up 2017–2018			3rd follow-up 2018–2019											
			48–59 months	60–71 months	72 months or older	48–59 months	60–71 months	72–83 months	60–71 months	72–83 months	84 months or older									
			n	%	n	%	n	%	n	%	n	%								
Girl	5	40	1	9	3	27	1	9	–	–	4	36	1	9	–	–	4	36	1	9
Boy	6	60	2	18	4	36	–	–	1	9	2	18	3	27	1	9	2	18	3	27
Total	11	100	3	27	7	64	1	9	1	9	6	54.5	4	36.5	1	9	6	54.5	4	36.5

2.3. Data collection tools

‘Basic School Skills Inventory 3 (BSSI 3) – Mathematics and Daily Living Skills’ subtests were used to collect data to evaluate the intended skills of the children.

2.3.1. BSSI 3 – mathematics

In this study, mathematics (20 items) and daily living skills (24 items), two subtests of BSSI, were used. Validity and reliability analyses were conducted for mathematics (20 items) and daily living skills (23 items) in order to test their suitability for Turkish children aged 4–6 years old. The tests proved to be reliable and valid to use with 4–6-year-old Turkish children (Yildiz, Cagdas & Kayili, 2017). In the follow-up tests, daily living skills were assessed with 23 items, while they were assessed with 24 items in the final follow-up. Validity and reliability of the original scale were established by gathering data in more than 10 states of the United States. The reliability coefficient was calculated to be 0.90 (Hammill, Leigh, Pearson & Maddox, 1998).

2.3.2. Basic school skills inventory (BSSI3)

This 20-item subtest, which measures the knowledge of numerical concepts and arithmetic operations, includes beginning mathematics. The components of math evaluations comprised quantity, relation, equivalence and simple arithmetic operations, as well as recognising, saying, identifying and writing numbers. Each item indicates a skill. Complete mastery is expected to be shown in the first grade of primary school.

2.3.3. BSSI 3 – daily living skills

This 24-item subtest, which measures basic knowledge and usual skills, is required for participating in daily activities at school. Areas evaluated primarily include self-care behaviours (such as hand washing, buttoning clothes, zipping, using handkerchiefs or similar things). Motor skills are directly related to school activities (such as cutting with scissors and paperwork) and these behaviours are essential for children to work independently (such as preparing materials for an activity). In addition, the basic information required for most items must be acquired in early childhood (such as telling the time from the non-digital clock and telling the names of the days of the week). The items reflect a child’s experiential background, primarily including parental education and influence. It is assumed that children who do well on these items will probably be independent and have better school responsibility (Hammill et al., 1998).

3. Procedure

In 2016–2017, the MTPM was administered to the mothers of 4–5-year-old children who received Montessori preschool education. The first follow-up was carried out 6months after the training programme was completed; the second follow-up took place 6months after the first follow-up and the third one was carried out 12months after the second follow-up. All 11 children included in the study in the 2016–2017 school year were reached in the 2018–2019 school year. The data were provided by the children’s teachers.

4. Data analysis

Statistical analysis of the data was carried out by using Statistical Package for the Social Sciences 20.0 data analysis package programme and the Wilcoxon signed-rank test. The Wilcoxon signed-rank test was used to see whether there was a difference between the two measures obtained from the same data source (same units). If the sample was measured in two cases or in two different conditions, the Wilcoxon signed-rank test can be used. It can be used as an alternative to the paired samples t-test for reasons such as inadequate amount of data or failure to meet the conditions of t-test – a parametric test – because there are anomalies in the distribution of the differences in measurements even if there is enough data, and the data being at least in an interval scale (i.e., the ordinal scale) (Buyukozturk, 2019).

5. Results

This study was carried out to observe for 2years the maths and daily living skills of the children whose mothers participated in the MTPM and to see whether the effectiveness of the programme still existed; the present study yielded the following results.

The results of the follow-up tests related to the maths and daily living skills of the children are given in Tables 2–5.

1. In relation to the maths skills of the children whose mothers participated in the MTPM
 - a) The Wilcoxon signed-rank test was used to identify any significant difference between the post-test means and the first follow-up means that children scored 6months after the MTPM was implemented. The findings of the comparison are given in Table 2.

Table 2. Results of the Wilcoxon signed-rank test for the post-test and first follow-up mean scores on mathematics skills

BSSI 3	Group	n	Mean rank	Sum of ranks	z	p
Mathematics	Negative rank	3	4.50	13.50	-0.631 ^a	0.528
	Positive rank	3	2.50	7.50		
	Ties	5				

^aBased on positive rank.

As can be seen in Table 2, no significant difference was found between children’s post-test and the first follow-up mean scores ($z=-0.631$, $p> 0.05$). Considering the mean rank and the sum of ranks of the difference scores, it can be suggested that the programme maintained its effect since there was no difference in the mathematics skills of the children 6months after the programme was implemented.

- b) The Wilcoxon signed-rank test was used to analyse the statistical differences between the first and the second follow-up mean scores of the children whose mothers took part in the MTPM. The findings are presented in Table 3.

Table 3. Results of the Wilcoxon signed-rank test for the first and second follow-up mean scores on mathematics skills

BSSI 3	Group	<i>n</i>	Mean rank	Sum of ranks	<i>z</i>	<i>p</i>
Mathematics	Negative rank	1	1.50	1.50	-2.652 ^a	0.008*
	Positive rank	9	5.94	53.50		
	Ties	1				

^aBased on positive rank.

* $p < 0.05$.

The data in Table 3 indicate that there is a statistically significant difference between the first and the second follow-up measurements in children’s mathematics skills ($z = -2.652$, $p < 0.05$). Given the mean rank and the sum of ranks of the difference scores, it is seen that there was a difference in the mathematics skills of the children 12 months after the programme was applied, and this difference was in favour of the children whose mothers participated in the ‘MTPM’. In other words, it can be suggested that the MTPM increased its impact and mothers kept working with their children.

- c) The Wilcoxon signed-rank test was carried out to identify any significant difference between the second and third follow-up means children scored on the mathematics test. The findings are given in Table 4.

Table 4. Results of the Wilcoxon signed-rank test for the second and third follow-up mean scores on mathematics skills

BSSI 3	Group	<i>n</i>	Mean rank	Sum of ranks	<i>z</i>	<i>p</i>
Mathematics	Negative rank	3	3.50	10.50	-1.744 ^a	0.081
	Positive rank	7	6.36	44.50		
	Ties	1				

^aBased on positive rank.

Table 4 shows that there is no statistically significant difference between the second and the third follow-up measurements relating children’s mathematics skills ($z= -1.744$, $p> 0.05$). Based on the mean rank and the sum of ranks of the difference scores, it can be said the MTPM maintained its impact as no difference was observed in the mathematics skills of the children 24 months after the programme was implemented.

2. In relation to the daily living skills of the children whose mothers participated in the MTPM
- a) The Wilcoxon signed-rank test was conducted to identify any significant difference between the post-test means and the first follow-up means that children scored 6months after the MTPM was implemented. The comparative findings are presented in Table 5.

Table 5. Results of the Wilcoxon signed-rank test for the post-test and first follow-up mean scores on daily living skills

BSSI 3	Group	n	Mean rank	Sum of ranks	z	p
Daily Living Skills	Negative rank	9	5.56	50.00	-1.512 ^a	0.130
	Positive rank	2	8.00	16.00		
	Ties	0				

^aBased on positive rank.

As can be seen in Table 5, no significant difference was noted between children’s post-test and the first follow-up mean scores on daily living skills ($z = -1.512$, $p > 0.05$). Considering the mean rank and the sum of ranks of the difference scores, and the absence of a difference observed in the daily living skills of the children 6 months after the programme was implemented, it can be suggested the programme maintained its effect as there was no decline in the children’s daily living skills.

- b) For daily living skills, the Wilcoxon signed-rank test was used to analyse the statistical differences between the first and second follow-up mean scores of the children whose mothers took part in the MTPM. The findings of the comparison are presented in Table 6.

Table 6. Results of the Wilcoxon signed-rank test for the first and second follow-up mean scores on daily living skills

BSSI 3	Group	n	Mean rank	Sum of ranks	z	p
Daily Living Skills	Negative rank	2	4.00	8.00	-2.223 ^a	0.026*
	Positive rank	9	6.44	58.00		
	Ties	0				

^aBased on positive rank.

* $p < 0.05$.

The data in Table 6 indicate that there is a statistically significant difference in children’s daily living skills between the first and second follow-up measurements ($z = -2.223$, $p < 0.05$). Given the mean rank and the sum of ranks of the difference scores, it can be seen that there was a difference in the daily skills of the children 12 months after the programme was applied, and this difference is in favour of the children whose mothers participated in the ‘MTPM’. In other words, it can be suggested that the MTPM increasingly maintained its effectiveness in the children’s daily living skills.

- d) The Wilcoxon signed-rank test was applied to determine the significant differences between the second and third follow-up means children scored on the daily living skills test. The findings are presented in Table 7.

Table 7. Results of the Wilcoxon signed-rank test for the second and third follow-up mean scores on daily living skills

BSSI 3	Group	n	Mean rank	Sum of ranks	z	p
Daily living skills	Negative rank	3	6.50	19.50	-0.818 ^a	0.413
	Positive rank	7	5.07	35.50		
	Ties	1				

^aBased on positive rank.

Table 7 shows that there is no statistically significant difference between the second and third follow-up measurements relating to the children’s daily living skills ($z = -0.818$, $p > 0.05$). Considering the mean rank and the sum of ranks of the difference scores, it can be said the MTPM maintained its intended impact as no difference was observed in the daily living skills of the children 24 months after the programme was implemented.

6. Discussion

This study was conducted to investigate the effect of the ‘Montessori Mothers Education Programme’ given to mothers of 4–5-year-old children who received Montessori education during the preschool period on children’s mathematics and daily life skills in the long term. Follow-up research was repeated three times within both developmental areas of the test after pretesting. In the first follow-up research conducted in 2016–2017, three of the children were 48–59 months old, seven children were 60–71 months old and one child was 72–83 months old (see Table 1). Children who reached the age of 4–5.5 to 4–5 years old received Montessori education in the preschool period. After a long holiday, the children who started school were evaluated by their teachers with BSSI 3 – Math subtest. For the first follow-up on mathematics (see Table 2), the teacher found that the result obtained was significant. When looking at Table 5 for the results of the children’s daily life skills, it was seen that the difference in daily life skills of children was not significant 6 months after the application of the programme presented to the mothers. The absence of a difference between post-tests and follow-up tests in the research studies shows the permanence of the intervention (Alakoc Pirpir, 2011; Angin, 2013; Aral, Bicakci, Yurteri Tiryaki, Cetin Sultanoglu & Sahin, 2015; CamlibelCakmak, 2012; Gulleci, 2019; Kam, Greenberg & Kusche, 2004; Kayili, 2015; Ozturk Samur, 2011; Saltali 2010; Temiz, 2014; Ulutas, 2005).

In the second follow-up research conducted in 2017–2018, one child was 48–59 months old, six children were 60–71 months old and four children were 72–83 months old (see Table 1). According to the results in Table 3 comparing the first and second follow-up test scores regarding mathematics, a significant improvement in the skills of the children in the second follow-up measurement was observed. The same success was observed in everyday life skills (see Table 6). In addition to the ‘MTPM’ given at school, it can be said that preschool Montessori education contributed to this progress.

In addition, in the doctoral dissertation completed by Yildiz, it was reported that there was a significant difference in favour of the Montessori children, whose mothers received MTPM compared to children who received Montessori education, on the math and daily life skills of MTPM (Yildiz, 2018).

Mothers completed MTPM shortly before the first follow-up. In the second follow-up, the children continued to receive Montessori education in the preschool institution. It was seen that the attitudes of the mothers were also effective in the fact that the statistical result obtained in the second follow-up was in favour of the children receiving MTPM. With the increase of this effect in the second follow-up, it can be thought that the Montessori philosophy of mothers is from the environment and benefits from observation, and the environment in which children live is a motivating force for practicing them. It is certain that parent and teacher practices can improve internal motivation, autonomy (self-determination) and self-efficacy in education in children, and collaboration between parents and teachers who feed on the same philosophy contributes to the development of children (Bandura, 1994).

There are studies examining the effects of mother education programmes on children. In a study conducted by Cagdas (1997), the communication language between the mother and child education programme examined the effects of the experimental group on the attitudes and behaviours of mothers towards their children. It has been discovered that mother education is effective in ensuring the positive development of children’s behaviours related to cooperation and social relationships. Alakoc Pirpir (2011) implemented ‘Mother Education Programme in Preparing for Primary Education’ for the mothers of children between 5 and 6 years old. It was concluded that children in the 5–6 age group in the experimental group had higher scores than the control group in areas such as language and cognition (word comprehension, sentence comprehension, general knowledge, matching, reading maturity, copying and number maturity). After the ‘Mother-Child Communication Skills Training’ given to the mothers by Temiz, the experimental group showed that the average scores they obtained in

recognising and expressing emotions were significantly higher than the control group children (Temiz, 2014).

Research studies carried out outside Turkey found that the quality of the parent–child relationship is associated with children’s social and language skills, and the involvement of mothers in home-based educational activities was influential in children’s school readiness skills and school adjustment (Connell & Prinz, 2002; Mantzicopoulos, 1997; Mashburn & Pianta, 2006).

In the third follow-up study conducted in 2018–2019, one child was 60–71 months old, six children were 72–83 months old and four children were 84 months and older (see Table 1). At this stage, two children went to preschool and nine children went to primary school. Regarding the third follow-up test results, there was no significant difference in the math skills of the children between the second and third follow-up mean scores (see Table 4). As a result of the second and third follow-up evaluations in the daily life skills of the children, no meaningful statistical results were found (see Table 7). This is considered to be a good result in the evaluation of follow-up tests. Despite a long intervention period, some studies even showed slight descent between post-test and follow-up measurements (Alakoc Pirpir, 2011; Gulleci, 2019; Temiz, 2014). Although it has been 2 years since its implementation, the absence of a difference in MTPM may indicate the ongoing impact of the intervention programme. It cannot be denied that primary school education positively contributes to children’s mathematics skills, but it should be noted that preschool education and Montessori mathematics education offered in the early years at home continued to this age.

Montessori also emphasises that mathematical thinking is a natural and important feature peculiar to humans, which distinguishes man from other beings (Wilbrandt Cakiroglu, 2020). Children have all the necessary instinctive knowledge in preparation for clear ideas about numbers (Montessori, 2009). Considering that mathematics is an abstract concept, it tries to make mathematics as concrete as possible so that it can be understood by children (Pitamic, 2013). Each of the math materials is also arranged in a graded order. Mathematics materials have a certain order. All concepts are given to the child in order from simple to difficult. In the Montessori preschool classes, children up to 3–6 years of age come from these mathematical stages to the 8th stage. In the 8th stage, the four operations are done mentally and abstractly (Cakiroglu Wilbrandt, 2019). The mathematics learning series developed by Montessori not only provides addition and subtraction operations to 4–5-year-old children, but also provides more advanced basic learning (Lillard & Else-Quest, 2006; Lillard & Heise, 2016; Montessori, 2015; Yigit, 2008).

Why was the statistical difference not positive and important even though the children went to primary school and studied mathematics? – is what comes to mind. As the first answer to this question, the education of children at the age of 4.5 and 5 years includes basic mathematics and basic daily life skills. If something is given correctly at first, then errors will not occur. Children aged 4–5 years old are in the period of an absorbent mind. However, in the timeframe in which the last follow-up test was evaluated, one child was 60–71 months old (5–6 years old), six children were 72–83 months old (6–7 years old) and four children were 84 months and above (7–8 years old) (see Table 1). According to Montessori, the age range of 6–9 years is the period of turning from concrete to abstract and towards social development (Polk Lillard, 2013). In total, 10 out of 11 children had entered the period of ‘turning from concrete to abstract thinking and turning towards social development’. The fact that the children were in the same development line compared to 1.5 years ago and that all the children who attend primary school had very good mathematics grades suggested that the effects of basic knowledge and practices received in the preschool institution continue to this day. The second answer to this question is that none of the children receives Montessori education anymore. Their disconnection with Montessori education and their failure to encounter any stimulants reminding them of Montessori education made us think that there might be a reason for the statistical difference to be meaningful. Because if the children had gone to a school with a Montessori education model, their development on concrete materials, mathematics and daily life skills would have continued. In short, two children in the experimental group went to preschool and nine children went to primary

school. The new schools apply different models than the Montessori model. From the result, it can be seen as an indicator showing that MTPM has positive effects on the development of children, thanks to the fact that children are mainly educated in Montessori and the order established and maintained by mothers at home. Gross, Green and Clapp (1970) exemplified children from four types of preschool institutions in their research. As a result of an evaluation made 3 years later, Montessori showed that the children reached the required maturity for their first year. Moreover, many of the Montessori children when asked, 'What do you want to study at school?', it was seen that they answered Mathematics. When the same question was asked to the mothers interviewed under the MTPM, they reported that their children 'love and care about mathematics'.

As a result, 4–5 years old, while in Montessori preschool, showed us that the first learning of children whose mothers received MTPM is strong and correct, and that they can maintain their effectiveness. As children continue to evolve and change, it shows us that the first learning is correct and the permanence of information is extremely important. The activities and the model that the mother can have on the child decrease over time, but the effects of educational environments and basic elements such as communication last a lifetime.

Suggestions as a result of this research are as follows:

1. Opening of Montessori primary schools for the continuation of this education, since preschool period Montessori schools in Turkey have become widespread.
2. In order to make better evaluations, taking samples from schools where different education models are applied and making new evaluations for children of the same age group are recommended.
3. It is recommended that maternal education should be carried out with volunteer mothers starting from early childhood in matters determined according to the need.

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