The Montessori Method in Pre-Primary Education - An Overview of Research Written in English

Brcko, Marta

SVEUČILIŠTE U ZAGREBU

UČITELJSKI FAKULTET

ODSJEK ZA ODGOJITELJSKI STUDIJ

MARTA BRCKO

Završni rad

The Montessori Method in Pre - Primary Education - An Overview of Research Written in English

Petrinja, srpanj 2020.

SVEUČILIŠTE U ZAGREBU

UČITELJSKI FAKULTET

ODSJEK ZA ODGOJITELJSKI STUDIJ

(Petrinja)

ZAVRŠNI RAD

Ime i prezime pristupnika: Marta Brcko

TEMA ZAVRŠNOG RADA: The Montessori Method in Pre - Primary Education - An Overview of Research Written in English

MENTOR: doc. dr. sc. Alenka Mikulec

Petrinja, srpanj 2020.

CONTENTS

SUMMARY

Over the centuries, the educational system has sought changes that would improve not only children's learning but also the teachers' role in teaching children. In addition to continual improvements introduced in state-owned pre-primary education institutions, a number of alternative approaches to education, including Montessori kindergartens, have been established. Montessori kindergartens are nowadays becoming increasingly popular among parents. The reasons for choosing these kindergartens can be found in their unique way of working with children and the Montessori pedagogy itself, which emphasizes the importance of children learning independently, and whose slogan is "Help me do it myself". The goal of Montessori pedagogy is not to drive, but to encourage activity, collaboration, and independent learning.

The aim of the theoretical part of this final thesis is to present basic information about Maria Montessori, her life and education, her teaching methods as well as the knowledge that Montessori pedagogy provides today for early childhood and preschool education institutions. This thesis will also give an overview of several research papers published in the English language on Montessori education in the eye of the public, Montessori learning and teaching, collaboration among parents, teachers, and children attending Montessori educational institutions as well as the main learning and teaching outcomes of Maria Montessori pedagogy. Creating a better path for the inclusion of children with disabilities into Montessori-based kindergartens will also be mentioned. The research papers used in the thesis were retrieved from online databases as well as Montessori association and some journal websites.

Key words: The Montessori method of education, Montessori teacher, Montessori pedagogical principles, social skills, Montessori didactic materials

SAŽETAK

Tijekom stoljeća obrazovni je sustav tražio promjene koje bi poboljšale dječje učenje, ali i ulogu odgajatelja u poučavanju djece. Uz kontinuirana poboljšanja u javnim ustanovama za rani i predškolski odgoj i obrazovanje, utemeljeni su brojni alternativni pristupi obrazovanju, uključujući Montessori vrtiće koji su danas sve popularniji među roditeljima. Razlozi odabira Montessori vrtića mogu se pronaći u njihovom jedinstvenom načinu rada s djecom i samoj Montessori pedagogiji koja naglašava važnost samostalnog učenja i čiji je slogan „Pomozi mi da to učinim sam!“. Zadatak Montessori pedagogije nije primoravanje nekoga na aktivnost, već poticanje aktivnosti, suradnje i neovisnog učenja.

Cilj teorijskog dijela ovoga završnog rada je predstaviti osnovne podatke o Mariji Montessori, njezinom životu i obrazovanju, njezinim nastavnim metodama, kao i spoznajama koje Montessori pedagogija danas pruža ustanovama za rani i predškolski odgoj i obrazovanje. Ovaj tekst također predstavlja pregled nekoliko istraživačkih radova objavljenih na engleskom jeziku koji govore o Montessori obrazovanju, Montessori učenju i poučavanju, suradnji roditelja, učitelja i djece koja pohađaju Montessori obrazovne institucije kao i glavnim ishodima učenja i poučavanja prema pedagogiji Marije Montessori. Također će biti spomenuto stvaranje boljih uvjeta za uključivanje djece s poteškoćama u Montessori vrtiće. Istraživački radovi korišteni u ovom završnom radu preuzeti su iz mrežnih baza podataka, kao i s mrežnih stranica Montessori udruga i časopisa.

Ključne riječi: Montessori metoda učenja, Montessori odgojitelj, principi Montessori pedagogije, socijalne vještine, Montessori didaktički materijali

1. INTRODUCTION

From the early 1990s, the number of Montessori schools has increased drastically and now it counts more than 22,000 schools in over 110 countries worldwide (American Montessori Society, 2020). The United States of America alone has 4,500 Montessori-based schools in 50 states (Hiles, 2018). This indicates that the Montessori approach, in which a child is taught by him/herself, is nowadays becoming very popular among parents. But why is that so? Is the enrollment of a child in Montessori school a result of parents' needs for smarter, more creative children in the society and in their age groups, or is the Montessori way of teaching a child basic human crafts better for their brain development? In a special way Montessori pedagogy teaches children certain activities much earlier than regular kindergartens. Those activities have been proven to be more efficient and age appropriate as well as encouraging for the development of many necessary skills. More and more authors and researchers are drawn to the Montessori pedagogy and the ways children are educated in these institutions, but also to the role of teachers in the Montessori-based kindergartens.

The following text will present several research papers on the topic of the public's opinion of Montessori kindergartens as well as the parents' knowledge and opinion of the same. Understanding basic Montessori principles is the key to introducing parents to a different form of education and encouraging them to nourish those principles at home. The thesis will also address the possibility of Montessori teaching at home and the benefits of combining and connecting family upbringing and kindergarten education, which could increase child's independence and self-regulation. The connection between parents and teachers is crucial for parents to better understand their child's surroundings as well as the role of the teacher. The importance of a positive and supportive environment for a child in early childhood and preschool education is great and can be related to the social environment. The inclusion of children with disabilities is another issue presented in this thesis. Finally, Montessori didactic materials used in the process of learning and teaching and their impact on children's IQ levels and phonological awareness will be mentioned.

2. MARIA MONTESSORI

Maria Montessori, born on August 31, 1870 in the province of Ancona in Italy, was one of the world's greatest educators, a highly intelligent creator and the first degreed female physician (Smith, 1997). As an only child of a well-off father, Alessandro Montessori, and mother Renilde Stoppani, Maria was very much drawn to reading like her mother. For Maria, school was not a place of peace and learning. It was more like a place where one's mind was discouraged from being free. In other words, for Maria school was a place of drilling the mind into memorization, and students were not given the opportunities to explore. When Maria was young, she knew what she wanted to study the most, and that was mathematics. "In order to pursue her studies in this field, and extraordinarily for a girl at that time, she attended a boys' technical school. She planned first to be an engineer, but eventually decided to become a doctor" (Feez, 2010, p. 8). As a young woman to study in a field in which mostly men worked, Maria had to overcome many obstacles to finally achieve her goal of becoming a doctor.

Throughout her college life, she was treated like a woman in every sense, and she experienced continued gender biased discrimination. "When she attended lectures, she could not enter the hall until after the male students had taken their seats. (…) She was forced to undertake her anatomy studies alone, working with cadavers in the evening by candlelight" (Feez, 2010, p. 9). Even though Maria was the only woman at the University of Rome's School of Medicine (Gutek, 2004, p. 4), she followed all the rules and graduated in 1896. Family medicine was the field that interested Maria the most, so after her graduation, she "worked as a clinician in the field of family medicine" (Feez, 2010, p. 9). "In 1896, Maria Montessori achieved another distinction. She was the first woman in Italy to be awarded the degree of Doctor of Medicine" (Gutek, 2004, p. 5).

In the 19th century, a very controversial and old-fashioned Italy was in a quite difficult place, so Maria not only cared for her patients' health, she also provided them with freshly cooked food, cleaning services and many others. She was very much interested in promoting and creating a better social reform that could contribute to a better life for mothers and their children around the country at the time. Maria thought that enhancing the quality of the environment in which all

children were raised was the key to overcoming the ills of human society, including poverty, inequality, mental illness, criminality and even war. This argument became the foundation of her life's work.

As a doctor, Maria Montessori was profoundly interested in mentally incapable or deficient children and thought that children with disabilities could profit more by learning through education, rather than through medical interventions (Feez, 2010). She worked in numerous clinics, pediatric institutions and hospitals, and participated in studies and congresses that talked about mental illness and children. The nineteenth century was a time when people did not know very much about mental illness and cases of mentally ill children, and consequently they did not know how to cope with children who needed more attention, so they just let them be. Maria Montessori stated that mentally disabled children need more attention and care in education and social aspects of life. She wanted to erase the phrase "idiots" when naming a child with a disability and instead create an environment where they could learn at their own pace, not in isolation, but integrated into society and the education system. That being said, Maria Montessori also wanted to gain a better understanding of the ways in which all children learn, so she dedicated her life to exploring children and their way of learning. After some time, Maria Montessori returned to the University, where she studied psychology, anthropology, educational history, philosophy and pedagogical principles (Gutek, 2004). She was now more focused on the education field of knowledge. While studying, Montessori decided she wanted to create an environment in which children could learn by exploring the space around them with their senses. On January 6, 1907, Maria Montessori opened her first public school called "Casa Dei Bambini"[1] in the city of Rome (Gutek, 2004, p. 14). Creating a school where children of destitute parents can learn and prepare for their future at a young age was very important to Maria Montessori, but at the same time she wanted to "test her ideas" on children. Creating an environment where children would teach themselves rather than be taught by teachers was very important for Montessori. Over time, she even started giving lectures to students who were interested in her work and her approach to child education.

[1] Eng. Children's House

One of her many achievements in life were the books she wrote. In 1909, she published her first book called “Il metodo della pedagogia scientifica” (The Editors of Encyclopaedia Britannica, n.d.). Gathering all her knowledge from studying children in their environment, Montessori’s method of educating young children was presented in many of her books. Her knowledge opened doors and created a new perspective of children and their learning abilities. Soon after her first “Children’s House” was opened, many others opened as well throughout the country and in the United States of America. Montessori worked closely with her son Mario, who continued her lifelong work after her death on May 6, 1952 in Amsterdam (Montessori Australia, 2020).

3. BASIC PRINCIPLES OF MONTESSORI EDUCATION

“If education is protection to life, you will realize that education must accompany life during its whole course.” Maria Montessori (BrainyQuote, 2001-2020)

The Montessori pedagogy is based on scientific examination and observing children’s spontaneous learning processes, encouraging their actions and autonomy as well as respecting a child’s identity (Phillips, 1999, p. 11). Examining her practice and through study at the university, Maria Montessori realized the true need of educating young children. While creating the space in which children could learn, she studied their needs at a certain age, abilities and incapabilities, and many more. Children learn by will, in other words, they learn spontaneously, with enjoyment and by observing. Within Montessori pedagogy several important measures as well as nine basic principles for child’s early years development have been proposed (Montessori Academy, 2020):

1. The absorbent mind
2. Auto-education
3. Sensitive periods
4. The prepared environment
5. Respect of a child
6. Montessori materials

7. Teaching role

8. Three-hour work cycle

9. Five curriculum areas.

These principles will be explained in more detail in the following text.

The first of the principles refers to the absorbent mind. Many would say that a child is like a sponge that absorbs every piece of interesting knowledge, so we must create, but not interfere in their absorption of the new. “We discovered that education is not something which the teacher does, but that it is a natural process which develops spontaneously in the human being” (Montessori, BrainyQuote, 2001-2020).

“Let us leave the life free to develop within the limits of the good and let us observe this inner life developing. This is the whole of our mission.” – Maria Montessori (Montessori Academy, 2017). Every child has his/her own pace at which they discover and figure things out, and that is why in Montessori preschool children have minimal group activities in order for a better individual growth to be enabled. A free will to choose an activity for learning means a free will to discover, create, play, investigate. Maria Montessori stated that interacting with other children and their surroundings is the best way of learning (Ackerman, 2019). Enabling children to have freedom within limits encourages them to be more respectful participants in the classrooms, which is the basic explanation of the auto-education principle.

“When a particular sensitiveness is aroused in a child, it is like a light that shines on some objects but not others, making of them his whole world” - Maria Montessori (Montessori in real life, 2019). Sensitive periods, as described by Maria Montessori, develop through six life cycles in specific order. The first of these cycles is the sensitivity to order, second sensitivity to language, third sensitivity to walking, fourth sensitivity to the social aspects of life, fifth sensitivity to small objects and sixth sensitivity to learning through the senses (Maria Montessori Preschool, 2020). For example, children may find some activities less appealing when they are younger because they have not yet reached a specific sensitive period of development. As a child grows and learns from the environment, he/she develops a free approach to activities, language, motor skills, play etc.

The early stages of life in which a child learns by senses determine his/her ability to fathom the possibilities of knowledge. The principle of "prepared environment" is crucial to the Montessori pedagogy. The environment must invite children to learn and explore, and it needs to be created to meet the needs of a young child. The prepared environment principle emphasizes the importance of a child's environment in which the learning process commences. Children learn mostly by their senses, so it is highly necessary to create an environment in which children would learn by touch, hearing, smelling, feeling and other senses. Moreover, creating a space in which children learn by choosing their "tools" and exploring their surroundings by themselves is a basic requirement in Montessori's method of teaching. Maria Montessori considered patience a very important aspect of the learning process, so it is very important that the space in which a child resides must not be too empowering over other senses and they must not collide with one another. This means that a child must be inspired to evaluate the possibilities, but also not to get his/her mind too preoccupied.

"Help me do it myself!", as already mentioned, has been the basic principle in the Montessori Method. Montessori believed that it is important to transfer knowledge to children, but also that it is more important for children to learn in the best way possible according to their abilities. A child is like a flower, if it is nourished a little, it will grow so much. In other words, if we help a child with small tasks, the child will observe and then create even more on their own. It is important to value children and their abilities and monitor their progress. Every child is an individual human being and should be treated differently but with the same respect. To respect a child implies respecting his/her freedom, genetic heritage and way of learning as well as discovering new ways of creation.

The material and tools children are in contact with while exploring are also of great importance. The Montessori method states the important aspect of "freedom", and the possibility to choose not only from a variety of materials but also the time he/she will spend on working and repeating the process gives a child a sense of freedom. "When children decide to do what they need to do, they are also able to take as much or as little time to do the activity as they choose" (Isaacs, 2007, p. 14). Seizt and Hallwachs (1996) stated that there are 5 groups of materials divided by

different areas of a child's development. These are materials for everyday life activities, for example, developing coordination of movement through sewing, pouring, threading, etc., sensory materials (sound boxes, smell bottles, and taste jars) for developing sensory abilities, math (counting), and language and space development materials (Isaacs, 2007, pp. 67-68).

The teaching role also has great importance in Montessori pedagogy. "Adults in Montessori classrooms foster children's development by serving as gentle guides and role models, using careful observation and limited directions" (Walls, 2018, p. 16). Teachers' role is to guide and encourage children to learn and to advise them how to resolve possible issues. They prepare the environment so that children can learn by themselves.

The early childhood environment focuses on concentration, coordination, order, and independence. Therefore, children must be given the time they need to fully submerge themselves in the work in order for these traits to manifest themselves. Three-hour work cycle, as the eighth principle, represents uninterrupted time during activities. Toddlers are not capable to endure in an activity for as much time as older children can. In addition, the work cycle varies in different age groups in preschool. For example, toddlers (two to three-year olds) have one to two-hour work cycle, while preschoolers (four to five-year-olds) have two to three-hour work cycle (Hollis Montessori School, 2018).

Montessori environment consists five curriculum areas which are included into the preschool environment: practical life skills, sensorial (learning through senses), culture, language and mathematics (At home with Montessori, 2020). The activities are diverse, which means that, for example, children learn about cultural aspects of different countries. All five areas develop different skills such as independence, coordination and fine motor skills, manipulation, concentration, but also phonetic awareness and cultural knowledge (How we Montessori, 2016).

4. MONTESSORI KINDERGARTENS

When she opened her first Montessori kindergarten in 1907, Maria Montessori supervised 60 children between 3 and 6 years of age. The initial intention was to look after children while the new housing in the area was being built. It later turned into evolution in the field of education and caring for young children (Ackerman, 2019).

In the 21st century, it is not unusual to have mixed-age pre-primary groups. They have a great impact on the teaching and learning methods for children of all ages. Mixed-age groups provide children with numerous and varied possibilities, unlike monotonous surroundings. This manner of teaching is a result of better understanding of children's needs, but also helping children to develop better social interactions, in other words, do more complicated crafts while interacting and learning from older children in the group. Mixed groups enable older children to reinforce their knowledge by teaching younger children other crafts. The concept of Montessori teaching is not "we must" but "we can try to do it ourselves". Children are not urged to do group activities, they are encouraged to choose materials to work with by initial motivation and drive (Gutek, 2004).

5. LITERATURE REVIEW

This section of the thesis presents a review of ten scholarly papers and studies that investigated pre-primary Montessori education. First, the aim and method of literature review are described, followed by the summaries of the analyzed articles divided according to subtopics.

5.1. AIM AND METHOD

The primary aim of this thesis was to analyze scholarly papers about Montessori education in order to identify its advantages and disadvantages. This topic was further analyzed in relation to the following five subtopics: knowledge of the public and parents about Montessori education, parents' willingness to apply Montessori principles at home, Montessori teachers, Montessori education and children's IQ and social skills, and the relation between Montessori education and children's phonological awareness.

The method used in this thesis was an analysis of scholarly articles retrieved from several databases. The main requirement for the selection was that the article deals with Montessori-based education at pre-primary level. The selected articles were retrieved from databases such as ERIC and Scopus as well as some websites dedicated to Montessori education, e.g. AMS (American Montessori Society), Maitri Learning and Journal of Montessori Research.

6. ANALYSIS AND DISCUSSION

This chapter gives an overview of the analysis of articles related to Montessori teaching method and Montessori pedagogy. The articles were divided into the already mentioned five subtopics and within each subtopic two research papers are presented.

6.1. MONTESSORI EDUCATION AND PUBLIC PERCEPTION

This section includes two studies which investigated the topic of public and parents' perception of Montessori education. Because of its unique way of teaching children to become more independent and self-motivated, Montessori kindergartens have gained significant attention among parents. The primary goal for everyone is the best education, so early and preschool institutions should consider the parents' needs and their educational goals when choosing the education for their child.

6.1.1. Public perceptions of Montessori education – Angela Kinney Murray

There are some misconceptions about Montessori education in the public, which may be a result of mainly partial understanding of these educational institutions. Walls (2018) and Namuddu, Vance, and Litton (2019) state that most parents and (or) legal guardians of children attending Montessori kindergartens know very little about the Montessori principles and method. Therefore, it is important for parents and the general public to be provided necessary information about these kindergartens and their importance for a child's development. Overall, there should be a better understanding of parents and their (and their children's) needs as well.

Murray Kinney (2008) carried out a study in the USA using an online survey distributed among 1,520 members of an internet panel. The sample was almost evenly distributed according to gender (53.9% male, 46.1% female). This research

focused on “how much the general public knows about Montessori education, perceptions of Montessori education and the attitudes and demographic characteristics that are associated with positive perceptions of Montessori education” (Murray Kinney, 2008, p. 31). Only 80 participants ever had children enrolled in a Montessori school, and the majority of children (n=66) were enrolled in private Montessori school while the rest were enrolled either in public (n=10) or both private and public Montessori school (n=4) (Murray Kinney, 2008). More than half of the respondents (n=1,025) answered that they know or have heard of Montessori education, and the majority of further analyses included this subsample. Murray Kinney (2008) compared the participants’ familiarity with Montessori education with their education levels. Those who were familiar with Montessori education were further asked questions regarding general knowledge about its principles. In spite of the fact that most, if not all, of the respondents reported knowing the principles of “auto-education”, “respect of a child” and “prepared environment”, they did not know the principle of “teachers’ role” in a Montessori-inspired kindergarten. When asked about the Montessori support for raising children and developing some skills, participants answered that Montessori education is strong in some areas but weak in others. For example, “teaching math skills”, as stated by the participants, was weak, whereas “encouraging creative thinking”, in other words, challenging children to think “outside the box” was considered to be very strong. However, in this research four research studies were mentioned which confirm parents’ misconception as they “demonstrated consistently superior math skills for Montessori children compared to children in other educational settings” (Murray Kinney. 2008, p. 70). These results show that parents actually have very limited knowledge about Montessori curriculum. In other words, participants were not familiar with individual Montessori principles and they had little knowledge about the functioning of a Montessori classroom. Regarding the public’s knowledge of basic Montessori principles, Murray Kinney (2008) covered the topic of classroom environment and its accessibility. For instance, most of the participants knew that “mixed-age groups” in Montessori classrooms are common and that Montessori emphasizes learning through senses. On the other hand, few of the respondents incorrectly thought there are prizes given to children when completing certain hard work and that children have special workbooks which they learn from. The study also covered the topic of inclusion for children with special needs. Montessori education, based on the respondents’

answers, has very little effectiveness when it comes to inclusion of children who have some form of disability. Nevertheless, "The results showed that the general public perceived Montessori education to do a significantly better job, compared to schools in America in general" (Murray Kinney, 2008, p. 53). Finally, those parents who knew or thought they knew Montessori better, thought it to be very good in terms of motivating children and giving them the right possibilities to succeed in several tasks, and have higher support than those who do not know much about it.

Overall, according to the results and information provided by the survey about public perception of Montessori, it could be stated that the general public has positive attitudes towards Montessori education and its benefits for early childhood. The parents also emphasized their lack of knowledge about Montessori-based education and the importance of a better understanding of Montessori education and the methods applied in teaching children. The study also showed that the greater the education level of the parents, the greater understanding and appreciation of "free learning" in Montessori is visible. It may therefore be concluded that Montessori curriculum is different from traditional, and the participants in this study have observed some of its practices.

6.1.2. Measuring parent perception and understanding of Montessori education in three Massachusetts Montessori schools – Elisabeth Hiles

When choosing a platform for education, parents have nowadays become quite demanding in the sense of selecting the most motivational and "hard-working" environment for their child. Many parents have misconceptions about the Montessori method, in which learning is an activity rewarded by itself (Hainstock, 1997 as cited in Hiles, 2015). The text represents an overview of the research conducted by Hiles (2015) about the parents' view of the Montessori approach in pre-primary education, why the parents chose Montessori for their child's education and how they believe it could help children to succeed in ordinary tasks. The study further identifies some perceptions and misperceptions of Montessori principles. The 145 participants in this study were parents and legal guardians of children enrolled in Bay Farm Montessori Academy in Duxbury, MA; Oak Meadow in Littleton, MA; and Thacher Montessori School in Milton, MA (Hiles, 2015).

> Bay Farm has engaged in this study to help address the issue of parent education and parent engagement in the Montessori method of schooling. (…) Bay Farm

> acknowledges that the school could be more effective at communicating its message to parents. (…) Trying to ascertain parents' views and attitudes regarding Montessori education can help the school create new methods for delivering and disseminating information to parents. (Hiles, 2015, pp. 3, 4).

An e-mail was sent to both parents and guardians of children who attended a Montessori school asking them to take part in the 15-minute survey carried out via a web-based tool. The survey was accessible for 2 weeks in March of 2015. The survey itself had two sections. The first section consisted of seven questions and four statements related to each of the questions, totaling 28 statements. The parents were asked to rate the statements on a five-point Likert scale ranging from "not at all important" to "very important". "The quantitative questions specifically addressed the six Montessori principles and were designed to test a parents overall understanding of each principle" (Hiles, 2015, pp. 41,42). The principles are: respect of a child, absorbent mind, sensitive periods, auto-education, prepared environment and teacher's role. The second section had three interactive, engaging, open-ended questions which addressed parent choice, changes in parent understanding, and understanding of classroom materials (Hiles, 2015). In these open-ended questions parents could give more elaborate answers. The answers were coded and given points, i.e. "The researcher then identified 22 codes for question 1, 17 codes for question 2, and 20 codes for question 3" (Hiles, 2015, p. 35).

The first section, which was targeted to examine the knowledge of Montessori principles, showed a wide range of answers given by the participants. The findings regarding 28 questions about Montessori principles emphasize the lack of understanding of Montessori preschool curriculum. In other words, it was found that parents have little knowledge about the educator's role in the environment. Furthermore, parents weighted the initial role of an educator in a Montessori environment. "The teacher is meant to create the space in the classroom where children learn to help themselves (…) the majority of parents understand that a role of the teacher in a Montessori school is to help the child learn to help himself or herself" (Hiles, 2015, pp. 59, 60).

The second section contained the following three open-ended questions: "Why did you decide to send your child to a Montessori school? How has your understanding/appreciation of Montessori education changed since first enrolling a

child in Montessori school? How would you describe the materials in your child's classroom?" (Hiles, 2015, p. 50).

Answering the first question about the reason for enrolling their child into Montessori kindergarten, the parents gave a variety of answers, some of which are: personalized attention, different curriculum, academic environment and hands-on/inquiry-based approach (Hiles, 2015). The answers to the second question regarding understanding/appreciation of Montessori school, indicated parents' far greater appreciation for Montessori and the curriculum it stands for. "Parents emphasized the depth and breadth of the curriculum and the inquiry-based approach to teaching" (Hiles, 2015, pp. 61-62). Nonetheless, some parents acknowledged a significant flaw in the system, i.e. "small percentage of parents felt that the Montessori schooling system worked well at the lower grades, but not so well for the older elementary kids" (Hiles, 2015, p. 62). When asked the third question regarding Montessori materials, parents stated that didactic materials were in fact appealing, inviting, engaging, well organized, colorful and even beautiful. However,

> some parents mentioned that the classrooms tended to be a blend of both Montessori and traditional teaching styles, with more Montessori approaches used at the lower levels and more traditional approaches used at the older levels. There were also parents who felt that there was not enough structure in the classroom and that their children were not getting all of the help that the (sic.) needed. Finally, there were parents who felt that the materials were bland and adequate, and that they wanted more modern approaches to teaching. (Hiles, 2015 p. 54).

Parents and guardians also did not see the importance in the principle of respect for a child. While it is considered to be a foundation for Montessori approach, "Only 33% of parents and guardians surveyed determined that it was very important. (…) Further, nearly one quarter of parents felt that the teacher should solve the problem for the child" (Hiles, 2015, p. 67). Although some parents agreed that it is very important for a child to resolve problems on their own, others disagreed. Therefore, parents consider the educator's role in problematic situations to be very important and that children must not resolve problems on their own. Parents and guardians have confusions regarding the understanding of the prepared environment principle and how it was designed to be the best accomplice in learning. "The main idea behind the prepared environment is that it is designed in such a way that the child has the freedom to choose their own works as well as work at their own pace" (Hiles,

2015, p. 57). There were contradictory assumptions from parents and guardians in all three schools, i.e. “61% Bay Farm parents felt it was important that a teacher present a lesson plan. Forty-three percent of Thacher parents and 40% of Oak Meadow parents felt that it was important” (Hiles, 2015, p. 57). The lack of understanding of the sensitive periods’ principle is also present. Parents were asked to evaluate the role of an educator when a child is more preoccupied by one specific activity rather than, for example, ten others.

> Only 21% of parents responded that it was very important that the child be allowed to continue to work on that aspect (…) 29%, were concerned that the teacher should make sure that their child is keeping pace with his or her classmates. Twenty-seven percent of parents surveyed wanted the teacher to try and shift the child’s attention elsewhere. (Hiles, 2015, p. 58).

Most if not all parents and guardians did not understand the main intention of Montessori learning, i.e. the absorbed mind principle and auto-education principle. Since it had been found that some parents think that children are motivated purely by the goal of the activity, when they are not, this principle was investigated in Hiles’ study. The researcher wanted to obtain the opinion of parents about the ways in which children learn. The results showed significant differences between the schools which participated in the study. “Bay Farm had the largest percent of parents (92%) who felt that goals were important. In contrast, 73% of Oak Meadow respondents and 63% of Thacher parents and guardians believed goals were important” (Hiles, 2015, p. 59).

The curriculum aspect and didactic materials used in Montessori education seem to be very confusing to most, if not all, parents. Furthermore, there were many inconsistencies regarding parents and guardian’s perception of the materials used and their distribution in the environment. “Two questions were aimed at parent understanding of how the curriculum materials are grouped and placed, and how the materials should be presented” (Hiles, 2015, p. 71). In a Montessori prepared environment, didactic materials are openly displayed, chosen by the child and are free to use as well as learn from as long as a child needs to master something.

> Forty-eight percent of parents think that it is important or very important that a teacher present a lesson, and 91% felt it was important or very important to collaborate with peers. Ninety-three percent think it is also important for children to work on tasks themselves. Further, 48% of parents indicated that it was important or very important that a teacher present the curriculum (Hiles, 2015, p. 71).

Research results show that the tested schools differ and that parents have insufficient knowledge of Montessori learning principles and everything associated with the Montessori way of learning and mastering the material. Some data show that a certain number of parents possess knowledge of Montessori learning, whereas the vast majority show a great deal of misunderstanding and even disinterest and criticism. Some parents believe that Montessori is one of the better ways to educate children of early childhood and preschool age, while others believe that it does not differ in many ways from traditional principles of education. These facts lead to the conclusion that parents are not sufficiently informed about the learning process and the ways of learning that the Montessori curriculum encourages.

6.2. MONTESSORI IN THE HOME

> Family and kindergarten are two basic systems in which a child develops and grows, meets his/her basic needs, acquires first-hand knowledge of him/herself and the world around them, learns about communication and relationships, coexistence, tolerance, and develops the knowledge and skills necessary for life. (NKRPOO, 2014, p. 13).

The coexisting relationship between parents, teachers, and children is very important. The role that parents have in the educational institution, as well as outside of one, has a vital effect on the child's effectiveness and cooperation in the environments in which they thrive. Furthermore, a parent should be treated as an equal partner in the educational process. Therefore, this chapter presents two different studies that look into implementing Montessori methods in the home environment, and the effect it has on a child's development outside kindergarten.

6.2.1. To what extent do parents of Montessori-educated children "do Montessori" at home? Preliminary findings and future directions – Jill K. Walls

The text written by Walls (2018) elaborates the research into parents' involvement and interaction with their children outside the Montessori-based institution, specifically how, and if, parents "do Montessori" at home. The research instrument was an online survey that was targeted at families whose children attend a private Montessori kindergarten in the Midwest USA. The participants were 22- to 49-year-old parents from 30 families whose children were between 1.5 and 6 years old. In order to motivate parents to join the study, "Participating families received a $10 incentive and one hour of credit toward their volunteer obligations at the school" (Walls, 2018, p. 17). The survey asked parents to state "their reasons for selecting a

Montessori school, their general understanding and endorsement of Montessori principles, the manner in which children's materials were stored in their home, opportunities for children's autonomy at home, discipline strategies, and parenting style and beliefs about child development" (Walls, 2018, p. 17). Parents were also offered to answer 4 questions based on their beliefs on child interaction with other children as well as the importance of parents' inclusion in children's learning process at home. The study consisted of quantitative and qualitative questions i.e., some of the questions were fixed response and some were in the form of open-ended questions providing parents an opportunity to give further explanation. The study explored home environment and parents' involvement in a child's Montessori education at home as well as the parents' will to participate and create a Montessori-inspired home based on their knowledge about Montessori principles.

> The greatest development is achieved during the first years of life, and therefore it is then that the greatest care should be taken. If this is done, then the child does not become a burden; he will reveal himself as the greatest marvel of nature. Maria Montessori (BrainyQuote, 2001-2020).

For instance, parents were asked to elaborate not only how the space in their home is designed to accompany the child's basic needs and in what way it is accessible to the child, but also which materials children use to play with, and how much they help or engage in everyday chores. The author of the study connected parenting styles and parents' cultural background with the parenting practices as well as the use of discipline for more detailed information on the parents' behavior pattern through a scale which ranged from 1 (disagree) to 4 (agree). Connecting the two, the author wanted to highlight parental guidance toward better learning and the importance of adults in a child's life of learning. Parents were presented with a series of events and activities which they had to rate from 1 (never) to 6 (always) to indicate how often they use the stated activities. The results were arranged based on the 4 existing parenting styles (authoritarian, permissive, authoritative, uninvolved). Discipline strategies used by parents were evaluated in the same way and grouped for harsh, passive and active discipline. The parents who answered this question stated that the use of harsher discipline was non-existent or very small. In addition, some parents recalled using time-out and serious tone of voice as a form of discipline. Moreover, Walls (2018) states that the use of discipline can be related with the understanding of the principles of Montessori schools and the implementation of those understandings.

Data obtained regarding implementing Montessori in the home indicate that the majority of parents use Montessori principles in the home environment. Parents further elaborated on their answers, for example, “I intentionally store my child’s belongings in a location where he/she can reach them” (Walls, 2018, p. 19). Results provided by the study indicate that most, if not all, of the parents use many Montessori-inspired methods to create an easily approachable environment for their child, e.g. open shelves, plastic or see-through materials, accessible children’s materials in the living room, playroom, etc. Half of the parents create and do Montessori at home based on the knowledge of the principles Maria Montessori created for children to be more independent and self-reliable. Moreover, parents elaborated the importance of involving children in basic housework or choosing their clothes.

Walls (2018) points out the lack of research about this topic (“Montessori in the home”) and emphasizes the necessity for a better understanding of the parents, their background and their interactions with children at home. She also proves in some way that there is a connection between parents’ education and cultural background and their will to apply the Montessori principles in the home environment as well. “Examination of the Montessori pedagogy reveals that no explicit role of parents is expressed, only that their mission is to protect the child and to care for him in the deepest sense of the word” (Berčnik & Devjak, 2017, p. 219). In conclusion, parents are willing to create a home environment for children to have easy access to some materials, but there are a number of parents who consider the tasks such as helping in the preparation of lunch unimportant or irrelevant for children at that age.

6.2.2. The effects of implementing Montessori at home on children’s independence and self-regulation in a Montessori classroom – Betty Namuddu, Emily Vance, and Victoria Litton

In the modern 21st century world, humans are undoubtedly smarter, faster and more independent when it comes to problem-solving. Maria Montessori recognized the importance of independence as early as a century ago, and that is why her method encourages independence in children. In other words, while learning, they are free of relying on others when it comes to problem-solving. The Montessori method encourages teachers and parents to give children the independence for which

they are reaching. Namuddu et al. (2019) proposed that parents may lack knowledge for proper reinforcement of Montessori skills at home. “There is a need for research regarding how teachers can guide children to independence in the classroom and how parents can support that independence at home” (Namuddu et al., 2019, p. 13). It is crucial for parents to help their children improve in every sense because “teachers can only enhance what the parent has nurtured at home” (Namuddu et al., 2019). That being said, Namuddu et al. (2019) conducted a study that looks into the connection between parents’ educational background and their parenting skills when it comes to encouraging independence in children outside the Montessori kindergarten. The study was designed as a pre-/post-assessment study, collecting quantitative and qualitative data from three schools in North Carolina, USA. Teachers and parents as well as children between ages 2 and 9 participated in the study. The pre-assessment questionnaire form was given to parents, and they were asked to explain the independence and self-regulation level of their child outside kindergarten. It contained questions regarding parents’ educational background and their connection with children’s independence and self-regulation development, as well as the parents’ involvement in fostering those characteristics at home. The goal was for parents to monitor children’s behavior or independence at home for 4 weeks and take notes based on the changes that occurred. Parents were given a task to nourish and stimulate independence and self-regulation with different approaches. At the same time, teachers at kindergarten were asked to monitor children and complete observation forms and teacher reflection journals on a daily basis. Teachers asked basic yes-no questions which children had to answer. “Lower elementary students completed the self-assessment interview forms independently” (Namuddu et al., 2019, p. 16). The journals that teachers took for several consecutive weeks consisted of their observation of children’s independence and self-regulation behavior changes, for example, washing the plates by themselves or not interrupting others while working. The data collected had been entered into Excel files, and pre-, mid- and post-observation forms that were given to teachers and parents were compared. The changes that occurred were analyzed, and dependent variables *independence and self-regulation* at home and in the classroom were compared with *parents’ involvement* as an independent variable. The dependent variables are: *packing their lunch; preparing food (simple); opening or serving a snack; doing or folding laundry; cleaning up their messes*, *getting their own drink, getting their own art*

supplies, taking a bath/shower, brushing their teeth and hair, picking up their clothing, needing no or minimal help dressing up at home and *being able to get out of the car, putting on and taking off shoes, putting away personal belongings to Cabbie, choosing a work/an activity to do, cleaning up and putting work on the right shelf, working without bothering others, completing work in a timely manner, serving snack and washing plate/cup* in the classroom (Namuddu et al., 2019, pp. 16-17, 20). The data varied for all three schools, but the results were slightly different between elementary and primary children[2]. Most of the parents took the pre-assessment in all three schools which participated, but there was inconsistency in the data from the post-assessment. The collected results showed that there were some changes in children's behavior. For example, the post data indicated that children have become more involved in preparing food for kindergarten, took bath as well as brushed their teeth and hair by themselves more often (Namuddu et al., 2019). In addition, children who took the self-assessment said they could do more actions by themselves rather than being helped by others.

In conclusion, all the post-assessments gathered show that children became more independent in several actions, as well as having more self-regulation over their actions. The study indicates the need and importance of nourishing some characteristics at home, as well as looking at children more in the sense of their working process development. Furthermore, the parents' involvement in the process of development is crucial, but sometimes requires more patience and commitment from the teachers and in this case, researchers. Challenging children in their environment encourages them to be more involved, and in addition develop more skills, but also nourishes the skills children have already inherited. This study emphasizes the need of educating parents how to do better parenting at home, how to encourage children to help and do things on their own and how to help teachers in their process of creating independent and self-regulated children.

6.3. MONTESSORI TEACHERS

In 1907 Maria Montessori began a revolution in early childhood and primary education establishing her first "Children's House", where she later learned how to better understand children with disabilities and create an environment which was

[2] Primary children were those aged 3-6, and elementary were students between the ages of 6 and 9.

more accessible to them and their needs. “Based on her own medical education, Montessori concluded that the methods used in training children with mental deficiencies could be applied to normal children, especially those of a young age” (Gutek, 2004, p. 9). We are witnessing increasing instances of children being born with different disabilities, whether it is hearing disabilities, autism, ADHD, etc. It is very important to include those children in the educational system and to educate teachers how to deal with them in the best way possible. Another important issue in Montessori education, as already mentioned, are carefully selected didactic materials and prepared environment. Therefore, the following two studies focused on teachers’ attitudes about the inclusion of children with disabilities and their evaluation of several didactic materials used in Montessori programs.

6.3.1. Montessori and non-Montessori early childhood teachers’ attitude toward inclusion and access – Natalie Danner and Susan A. Fowler

The present study, conducted by a postdoctoral researcher Natalia Danner and her professor Susan A. Fowler in 2015, examined the inclusion of children with special needs in the Montessori and non-Montessori kindergarten curriculum, and how teachers deal with children who have some type of disability. It was originally intended as a comparison among four groups of teachers, but based on the responses the study finally yielded, it was changed into a comparison between Montessori and non-Montessori teachers in both private and public kindergartens in the USA. The study was carried out as a two-group online survey which was completed by early childhood teachers working in Montessori and non-Montessori kindergartens, who have or have not experienced working with disabled children. This study examined teachers’ education level and experience in working with disabled children and their attitudes toward inclusion, and compared the answers collected through an online survey. Both groups were primarily women with a mean age between 42 and 46, and with an average of 13 years of work experience. The final sample comprised 82 Montessori teachers and 168 non-Montessori teachers. The survey consisted of 72 items, which included 49 Likert-type scale items, 17 multiple-choice items and six open-ended questions, and which, on average, took 20 minutes to complete.

> Survey items measured teachers’ thoughts about inclusion, which included the ideas and beliefs they had about including students with disabilities in typical classrooms, teachers’ positive, negative, or neutral feelings about inclusion, and teachers’

> behavior in inclusive classrooms. (Triandis, 1991 as cited in Danner & Fowler, 2018, p. 31).

The study addressed the number of children that Montessori or non-Montessori kindergarten teachers had experience working with as well as how many students with disabilities in general attend Montessori and non-Montessori kindergarten at a given time. Results indicate that non-Montessori kindergartens have a larger number of children with disabilities than Montessori kindergartens do. Consequently, non-Montessori kindergarten teachers have more experience working with such children. The disabilities that were set forth in the survey were, for example, developmental delays, intellectual disabilities, traumatic brain injury, autism, and the most common in both Montessori and non-Montessori kindergartens, speech or language impairment. The results of the study were grouped by the following 3 principle components - knowledge of inclusion, support for inclusion and feelings about inclusion. The first component, knowledge of inclusion, focused on the amount of knowledge Montessori and non-Montessori teachers have when it comes to inclusion. It consisted of

> six dependent variables: how often teachers modify learning activities, how often they use universal design for learning, how often they use assistive technology, how much they know about universal design for learning, how much they know about modifying learning activities, and how much they know about assistive technology. (Danner & Fowler, 2015, p. 35).

Further analysis of the first component through given scores, showed that non-Montessori primary teachers have greater knowledge about inclusion in general and in practice, than Montessori teachers do. Furthermore, the second component looked at the differences between the support for inclusion in both groups of teachers. “Five dependent variables were used: how important these types of supports are for students with identified disabilities, one-on-one adult support, support services, support from school administrators, collaborating within the classroom team, and support from families” (Danner & Fowler, 2015, p. 36). Non-Montessori teachers value the support given to children more, in a form of one-on-one adult support, support from school administrators, collaborating with the classroom team etc., than Montessori teachers do. It could be connected to the first component which showed that Montessori teachers had less knowledge about inclusion and less practice when it comes to working with children who have a disability. In other words, they do not need the support if they do not have a child in their class who needs better inclusion.

The last component elaborated teachers' feelings about inclusion. "Eight dependent variables addressed teachers' feelings about student belonging (one variable), modification of materials (two variables), adapting the classroom environment (four variables), and assistive technology (one variable)" (Danner & Fowler, 2015, p. 36). Results showed similar feelings in both teacher groups when it comes to inclusion and adapting the environment, materials and activities to children with disabilities.

In conclusion, this study showed very similar positive feelings toward children who need more help in the learning process and making the environment more suitable for their needs and abilities. Even though Montessori teachers had less experience with teaching children with special needs, they also had positive mindsets to their inclusion in the normal curriculum. Moreover, the teachers showed more or less similar knowledge about general inclusion, but it was later pointed out by teachers of Montessori kindergartens that in the course of their education they have had fewer courses dedicated to inclusion and its' benefits, not just for the teachers, children and the parents but also for the whole kindergarten. The study raised the question about inclusion in the Montessori environment and addressed the need for better teacher training when it comes to Montessori kindergartens and inclusion.

6.3.2. Teachers' and students' evaluation of selected didactic materials according to the Maria Montessori pedagogy – Marija Sablić, Željko Rački, and Marija Lesandrić

Didactic materials and prepared environment are equally important for accomplishing better developmental and social education for early childhood and preschool children. Maria Montessori perfected her pedagogy throughout her life, working with early childhood and preschool children. "Maria Montessori lead a child with the help of didactic material and by means of a systematic training to universal skill and knowledge" (Sablić, Rački, & Lesandrić, 2015, p. 756). Many teachers state that Montessori didactic materials help children develop some skills that are mostly intrinsic and hard to get "on the surface". At the same time, most students and teachers of early childhood and primary education think differently when it comes to materials with which children come in contact, play and learn. In view of this, Sablić et al. (2015) conducted a study which explored teachers' and university students' evaluation and view of Montessori materials being used in Montessori programs, as well as their usefulness in the process of learning. The study included 47 in-service

primary school teachers and 63 university students, pre-service primary school teachers, from Osijek, Croatia, and it was carried out in 2013. The students between ages 22 and 28, and teachers between ages 23 and 72 took part in the research. In both groups the majority of the participants were female (91.5% in the teacher sample and 96.8% in the student sample). Before the study began, the participants had to sign a written consent to participation in the research. The participants later evaluated the following chosen didactic materials: "4 materials for Cosmic Education, 3 for Mathematics and 3 for Language Education" (Sablić et al., 2015, p. 760). The evaluated materials could not be provided for the evaluators (teachers and students) in physical form. Instead, they were shown a photo and a detailed explanation of every individual item. The materials were evaluated on a scale from 0 to 3 from useless to useful in both negative and positive direction (useless - 3 - 2 - 1 0 1 2 3 useful). The first characteristic evaluated was: easy to make, does not require major investment, does not require a lot of time to make. The second characteristic was cognitive, in other words, the participants were asked to assess if the materials were logical and easy to use. The third characteristic was affective-motivational, i.e. the participants were asked if they thought the materials were motivational enough for children, and if they were inspiring and interesting enough. The fourth and final characteristic was acceptance of the material, where the evaluators were asked if they thought children would like the material and if they would play with it as well as if the teachers would use it in their classroom. All the selected didactic materials were considered valuable, worthy and good for the Montessori approach in all 3 educational fields and in both groups of participants. However, "teachers gave comparatively highest evaluations to Mathematics and Language material, and students gave highest evaluation to material for Cosmic Education" (Sablić et al., 2015, p. 764). It is also interesting that the materials for Cosmic Education were chosen to be the most difficult to make and most time-consuming. Both groups showed interest in having some of these materials in their classrooms but opted out other, like language learning materials and mathematics materials although these materials are appropriate for children and good for learning because of their motivational characteristics.

In addition to obtaining data on in-service and pre-service primary teachers' evaluation of the chosen didactic materials, Sablić et al. (2015) also inquired about

the participants' familiarity with the existing alternative pedagogical concepts such as Waldorf, Summerhill, Reggio, Freindet, etc. "Maria Montessori Pedagogy and Waldorf Pedagogy were the concepts most often specified" (Sablić et al., 2015, p. 761). Most of the participants were introduced to certain pedagogical concepts through their university education, but at the same time it was pointed that there was a need for more information about alternative pedagogical concepts throughout. The results further indicated that university students were familiar with alternative pedagogical concepts, whereas teachers have shown significantly less knowledge of these concepts. In total, 23 students and teachers had no knowledge about pedagogical concepts and could not name any. When it comes to the participants' opinion about the number of alternative schools existing in Croatia, 85.7% of students and 78.7% of teachers thought it to be too small. The connection with the knowledge of pedagogical concepts and evaluation of didactic materials used in Montessori education proved to be important. In other words, teachers and students who had less knowledge and familiarity with pedagogical concepts had less willingness to use the chosen didactic materials in their classroom, but still had positive opinions about them. This study also expressed the need of expanding the knowledge not just of teachers and students, but also the general public about the investigated pedagogical concepts and how they can become more important and valued in the society.

6.4. MONTESSORI EDUCATION AND CHILDREN'S IQ AND SOCIAL SKILLS

Developing social skills is very important for early childhood and preschool children, and in many ways, Montessori schools improve children's intelligence level and performance in social situations (Hessabi, 2011 as cited in Ahmadpour & Mujembar, 2015). The following two studies research the topic of the impact that Montessori education has on the development of child's social skills and IQ levels.

6.4.1. The impact of Montessori teaching method on IQ levels of 5-year-old children – Nooshin Ahmadpour and Adis K. Mujembar

Research conducted by Nooshin Ahmadpour and Adis Kraskian Mujembar in 2015 investigated the effect Montessori programs have on children and their IQ level. The aim was to investigate the possible improvement of intelligence in

children enrolled in a Montessori kindergarten versus those in the traditional kindergarten. Both kindergartens which participated in the study were based in the city of Shiraz, Iran. The researchers collected data from 80 five-year-old children to observe potential difference in the levels of intelligence development. Of 80 children who participated, 40 children attended a Montessori-based kindergarten program, and 40 attended a traditional kindergarten program. Both groups were chosen randomly. Raven's Coloured Progressive Matrices (CPM) test and Vineland Social Maturity scale were used to measure participants' IQ levels (Ahmadpour & Mujembar, 2015, p. 122). Raven's CPM test is a multiple-choice pencil and paper test for children between ages 5 and 11, which measures children's ability to understand complicated data, i.e. "the ability to perceive new patterns and relationships, and to forge (largely non-verbal) constructs" (The JvR Africa Group, 2020). Vineland Social Maturity scale is a psychological assessment tool used to evaluate social functions as well as adaptive functions, and consists eight different sub-scale measures (Roopesh, 2019). The researchers also reviewed the parents' background for educational level. Raven's CPM test was used to test intelligence through 36 pictures, which increasingly grew in difficulty. It was modified to fit the developmental level of children selected to participate. The task was to complete the pictures with the missing pieces by selection. The results showed higher intelligence level of children enrolled in a Montessori kindergarten system than that of children from traditional kindergartens, which can be connected to the way that a Montessori system works. In other words, in traditional systems it is the teachers' role to transfer knowledge to children while in Montessori pedagogy the teachers' role is to guide students in their learning process. That being said, children have more freedom and time to explore what they find the most appealing and valuable to them and for their thriving with minimal help from the teachers while the traditional kindergartens do the opposite. According to the traditional view, acquisition of knowledge demands concentration and discipline, and that the teacher is responsible for creating the discipline needed for learning. "On the other hand, Montessori approach suggests that acquisition of knowledge requires inspiration and a suitable educational environment, and that the teacher's task is to design and foster an environment for learning" (Ahmadpour & Mujembar, 2015, p. 123).

In conclusion, Montessori teaching can affect children's intelligence level in a positive way for them to experience the "real world" through math, language, cosmic education and more. Many authors state that the way a Montessori program teaches children to think is unique, and that children who attend Montessori schools have better foundations and a long-term effect on developing certain skills that traditional kindergartens could not transfer in such a way. Ahmadpour and Mujembar (2015) mentioned some studies that have proved that Montessori-taught children have far better test results in several different fields of science and other fields of education than those who attended traditional schools (Hessabi, 2011; Dohrmann, 2003; Manner, 2006; Lillard, 2012).

6.4.2. The effect of Montessori method supported by social skills training program on Turkish kindergarten children's skills of understanding feelings and social problem solving - Gökhan Kayılı and Ramazan Arı

Gökhan Kayılı and Ramazan Arı carried out research which investigated the impact that Montessori programs and other special programs have on developing social skills such as problem solving and understanding feelings in various situations. The research design included a pre- and post-test. In the research "the dependent variable is preschool children's skills of understanding feelings and their social problem-solving skills. Montessori method supported by social skills training program is the independent variable" (Kayılı & Arı, 2016, p. 82). There were 53 children between the ages 3 and 6 who were chosen to participate in the research. The children were divided into 3 groups. In control group 1 there were 19 children who attended pure Montessori-based program, while in the experimental group there were 18 children who attended Montessori program supported by social skills training program, and in control group 2 there were 16 children who attended the program developed by the Ministry of National Education in Turkey. The researchers used 2 types of tests in all 3 groups, the first being the Wally Feelings Test, which investigated the children's ability to understand certain feelings at the given moment or situation and were made suitable for the children's age and gender. The test consists of eight pictures displaying situations in which some hypothetical characters appear. The situations are both negative and positive, and the children are asked to describe the feelings they think the characters are experiencing in the given situations. Every answer is scored. The researchers created a scale of possible

answers based on children's vocabulary development level. If a child gave a correct answer, they scored 1 point. On the contrary, if a child gave an incorrect, unsuitable or did not know the answer, they got zero points. The scores for all picture-situations were later summarized. Researchers considered individual emotional skills level, which was compared with the results of the Wally Feelings Test. The second test used was Wally Social Problem-Solving Test, which consists of 15 pictures covering 11 themes with some conflict. "These are rejection, making a mistake, unjust treatment, victimization, prohibition, loneliness, being cheated, disappointment, dilemma, adult disapproval and attack" (Kayılı & Arı, 2016, p. 84). The child is asked what he/she would do in each situation based on their initial feelings. A child's response is scored according to the way he/she solved these situations either as prosocial i.e. positive, or antisocial i.e. negative.

To analyze the results provided from both tests, the researchers used Kruskal Wallis H and Wilcoxon Signed Rank Test. The groups were analyzed based on the pre- and post-test results of the Wally Feelings Test and Wally Social Problem Solving Test. The obtained data identified the "Social skills training program", in association with Montessori program, to have greater impact on children when it comes to deeper understanding of social skills and feelings. Social skills training program, which is implemented in kindergartens from early childhood, also involves parents who have activities and tasks to go over with children at home. These activities motivate not only children but parents as well to be more present in the program and in the development of their child, but also to be more present in the kindergarten. Notably, the Montessori program develops certain skills in a child when it comes to social thriving. Therefore, connecting Montessori with other learning programs increases the development level in certain fields. The authors support further development of the program and learning more about children's interactions with others surrounding them.

6.5. PHONOLOGICAL AWARENESS AND SCHOOL GAINS IN MONTESSORI EDUCATION

Maria Montessori was the first pedagogist who recognized the importance of developing phonological awareness in early childhood and preschool years, and therefore she created and included multisensory phonological activities into everyday

learning. This chapter brings two studies – the first one dealing with the influence of phonological awareness development in Montessori education on early childhood and preschool children, and the second focusing on the outcomes of preschool education in three different programs: classic Montessori, Montessori that supplemented the program with conventional school activities and a conventional program (Lillard, 2012).

6.5.1. Differences in phonological awareness of five-year-olds from Montessori and regular program preschool institutions - Vendi Franc and Siniša Subotić

The first article, written by Vendi Franc and Siniša Subotić, investigated the effects and differences of phonological activities and development of phonological awareness in early childhood and preschool children.

> Montessori preschool program (MPP) is a structured program that incorporates metalinguistic exercises, which are implemented even before children reach four years of age. In contrast, in regular preschool programs (RPP) in Croatia, activities related to the development of reading and writing skills are provided only to older children (Franc & Subotić, 2015, p. 12).

Phonological awareness has been defined as "a metalinguistic ability related to the acknowledgement of the sound components of speech and it is a significant predictor of later language skills" (Franc & Subotić, 2015, p. 12). Other authors define it as "the general appreciation of the sound component of speech, separate from meaning. (…) When this insight involves understanding that words can be divided into phoneme sequences, this more refined sensitivity is called phonemic awareness" (Snow, Burns, & Griffin, 1998 as cited in Subotić, 2011, p. 128). Franc and Subotić (2015) wanted to further investigate the importance of developing phonological awareness in two different early childhood and preschool settings.

> Children in Montessori programs are regularly participating in various metalinguistic and didactic play activities such as explicit phonological awareness exercises (…) but children from regular Croatian preschools are first introduced to letters in paper-print form (thus, a tactile component is absent) and literacy activities are typically done only with older children (…) they usually comprise paper and pen graphomotor skills and letter writing (Franc & Subotić, 2015, p. 14).

The authors conducted their research in the spring of 2013 based on the previous research done by Lillard in 2012. Their research investigated effects and differences of phonological activities and development of phonological awareness in early childhood and preschool children, in Montessori and traditional programs. The

research was performed in two Montessori and two traditional preschools in Zagreb, Croatia. The research included 60 five-year-old boys and girls whose parents approved of their participation. Parents of the children who participated, stated that their children were not enrolled in any additional program nor did they learn or progress in phonological awareness except in the kindergarten. The phonological awareness test "is an individually-administered test designed to diagnose deficits in phonological processing and phoneme-grapheme correspondence" (Robertson & Salter, 2016, slide 2). The test that was used in this research was the Phonological Awareness Test - FONT, designed by Subotić (2011) in collaboration with Knežević.

> In the working version, it included eight types of tasks, with six items (with instructions for assigning them): rhyme recognition, rhyme production, identifying the initial phoneme, identifying the final phoneme, merging the syllables, phonemic segmentation, initial phoneme elimination, and phonemic substitution (initial phoneme) (Subotić, 2011, p. 131).

This study used the same test (Subotić, 2011), which was slightly modified and renamed "The FONT-HR test" for this study, that is the "FONT-HR test" used eight rather than seven subscales. Every participant was tested in their kindergarten once, and they all finished the test in approximately 20 to 40 minutes. Results obtained from the study suggest that Montessori program offers better activities and approach when it comes to literacy development. "Five-year-olds from Montessori preschool programs outperform their regular preschool program counterparts on a measure of phonological awareness and this difference is substantial" (Franc & Subotić, 2015, p. 16). Franc and Subotić (2015) mentioned some limitations to their research such as the small sample size, which was limited to only 4 kindergartens in Croatia, but also suggested a need for further investigation of two aspects. Firstly, promoting Montessori programs more to parents to be considered for their child. Secondly, non-Montessori kindergartens should look into other curricula (in this example Montessori curriculum) to improve their teaching methods. There are still conflicting opinions about the advantages of developing phonological awareness in Montessori and traditional kindergartens. Based on the numerous studies that were conducted, it can be said that Montessori approach is better at developing phonological skills and uses multisensory approach, while traditional education focuses more on language learning activities for older kindergarten groups and separates it from other activities.

6.5.2 Preschool children's development in classic Montessori, supplemented Montessori, and conventional programs – Angeline Stoll Lillard

When it comes to Montessori impact on education, there are just a few studies dealing with the topic and they "present a mixed picture, with some showing better outcomes than other programs and others showing similar or even worse outcomes" (Lillard, 2012, p. 380). The most important factor related to children's outcomes in Montessori preschools is the fidelity of the program that is embodied in the preschool institution. "Fidelity of implementation refers to how well a program is implemented relative to the original or the ideal" (Lillard, 2012, p. 380). In other words, it examines how the materials are used by children and if there are enough activities for them to learn from, which are based on the Maria Montessori pedagogy. This study examined "whether different outcomes are associated with different implementations of Montessori, consistent with other domains in which fidelity of implementation has been related to different program outcomes" (Lillard, 2012, p. 382), that is "whether different child outcomes are associated with differences in implementation fidelity" (Lillard, 2012, p. 393). That being said, children were tested at the start and the end of the school year to identify their outcomes (in social and other academic skills) based on the fidelity of the Montessori program they were enrolled in. The study "examined preschool children enrolled in high fidelity classic Montessori programs, lower fidelity Montessori programs that supplemented the program with conventional school activities, and, for comparison, conventional programs" (Lillard, 2012, p. 379). There were two questions which the study was based on, the first being "do preschool children's school readiness skills change from fall to spring as a function of program type?" and the second "Does the percentage of children using Montessori materials in a classroom predict children's school readiness skills in the spring, after controlling for fall skill levels?" (Lillard, 2012, p. 383). One hundred seventy-two children aged 33 to 76 months who were enrolled in three different programs - Classic, Supplemented and Conventional took part in the study. On average, children from Conventional programs were older than the ones from Supplemented Montessori programs. "Children were recruited from seven different schools, five Montessori and two Conventional" (Lillard, 2012, p. 388). The classrooms were restricted according to the fidelity measures. In addition, four observers examined the materials used in the classrooms across the school year (twice in the spring and twice in the fall), which they were trained to recognize (Lillard, 2012). "Observations

started on one side of the classroom and marked down each child's activity, then moved towards the center and marked the activity of each child there, and then moved to the other side" (Lillard, 2012, p. 388). Classic Montessori classrooms were adhered to Maria Montessori pedagogy. Supplemented Montessori classrooms had few differences in the implementation. Besides the classic Montessori materials, they offered many conventional preschool materials like "craft projects, beads, puzzles, workbooks, commercial games like Memory, and commercial materials like LEGOs, on classroom shelves" (Lillard, 2012, p. 385). Supplemented Montessori classrooms also had special programs within the day such as 30-minute Spanish lesson. The classroom had two teachers in the room at the same time, rather than one like Montessori proposes. In conventional classrooms there were

> areas set up for pretend play and reading, shelves of typical preschool materials, like blocks, LEGOs, beads, and puzzles, (…) including paints, crayons, markers, and playdough, (…) there were workbooks for math and language, (…) the day was organized in a mix of lessons, specials, outside time, circle time, snack and lunch time, and free play time in the classroom. (…) None of the Conventional classrooms had any Montessori materials (Lillard, 2012, p. 385).

Children were tested individually, by five researchers, for 15-25 minutes for series of tests including: "the Head-Toes-Knees-Shoulders task, theory of mind, social problem solving, reading, vocabulary and math" (Lillard, 2012, p. 388). The Head-toes-knees-shoulders task examined the ability to carry out an opposing response. In other words, a child was asked to do the opposite of the command. For instance, touching their toes when asked to touch their head, and when asked to touch their knees they had to touch their shoulders. Each child was given 10 commands and was scored based on the ability to perform the opposite command. Two points were given if the child did the correct command, and one if they did so after a quick touch of the wrong location. As they progressed, the task got harder and new rules were added. After finishing the task, a child could score 0 to 40 points.

The Theory of mind task used the three most difficult items on the Theory of mind scale in this order: False Belief, Hidden Emotions and Perceptual Access. The tasks could be presented only if a child completed the previous task correctly. "Materials for this task were 4 dolls 3 to 4 inches high, a doll-sized side table with a drawer containing a small shell, a Band Aid box containing a pencil, a small super-ball, and a placard showing a sad, neutral, and happy face" (Lillard, 2012, p. 386). The first, False Belief task, consisted of a Band Aid box. The child was asked if

he/she knew what was inside, and they mostly guessed the right answer. Nevertheless, the box was opened to show the child that a pencil was inside. Then the box was closed, and a doll was brought out. The child was asked if the doll knew what was inside and if the doll saw inside the box. If the child answered correctly, they went to the second task. In the Perceptual Access task, the children were asked if they knew what was inside a closed wooden drawer. The drawer was later opened to reveal what was inside, and then closed again. The researcher asked again what was inside the drawer – this was a memory check. Then they brought a doll and asked a child if the doll knew what was inside the box. If the child answered correctly, they went to the last task - Hidden Emotions.

> …children were shown the sheet with happy, neutral, and sad faces on it, and were asked to point to the sad and happy faces. Then they were shown the first doll, and the experimenter said, "This is Joey. Today is Joey's birthday. He really wants a bicycle for his birthday, and he thinks his uncle is going to give him a bicycle." Then the second doll was produced. "This is Joey's uncle. His uncle is coming to give him his birthday present." (Lillard, 2012, p. 387).

Instead of the bicycle, Joe got a ball. "The sheet of faces was presented again, and children were asked, 'Which picture shows how Joey really feels when he gets the ball?' and then 'Which picture shows what Joey's *face* will look like when he gets the ball?'" (Lillard, 2012, p. 387). If the child answered correctly, they got 2 points.

The Social Problem-Solving Task was composed of one story presented in a picture form. The story is about two children characters who are the same age, gender and race as the children taking the test. The picture shows one of the children reading and one standing beside him/her. The tested child had to demonstrate his/her social problem-solving ability. "What could (Onlooker) do or say so he/she could have a look at the book? (…) What else could he/she do or say? (…) What if it was you? What could you do or say so you could have a look at the book?" (Lillard, 2012, p. 387). The answers were coded according to whether they referred to sharing or fairness. "The number of sharing and fairness or justice strategies children used among their three responses was summed for a score ranging from 0 to 3" (Lillard, 2012, p. 387).

The last task in this study was Reading, vocabulary and math. The Woodcock-Johnson III (Form A) test was used (Lillard, 2012).

> Reading was assessed with the Letter-Word Identification task in which one has to identify letters and increasingly difficult words. (…) Vocabulary was assessed with

> the Picture Vocabulary task (McGrew & Woodcock, 2001), which has children identify pictures. (…) Math achievement was examined via the Applied Problems subtest. This task involves simple counting, addition, and subtraction, reading clock faces, and reporting and calculating coin values. (Lillard, 2012, pp. 387-388).

Montessori classrooms were classified according to the measure of fidelity, and the main question was how much knowledge a child gains throughout the school year in three different Montessori program schools based on the Montessori pedagogy fidelity.

> Although they performed no better in the fall, children in Classic Montessori programs, as compared with children in Supplemented Montessori and Conventional programs, showed significantly greater school-year gains on outcome measures of executive function, reading, math, vocabulary, and social problem-solving. (Lillard, 2012, p. 379).

The study results showed that at the beginning of the year there was no advantage for children in Classic Montessori programs (Lillard, 2012), but children attending these programs gained more in one school year than those who attended Supplemented or Conventional Montessori programs. In addition, Classic Montessori programs had higher fidelity of implementation in comparison with the other two programs and it had significantly influenced children's gains throughout the school year. Children from Classic Montessori programs had better reading and vocabulary scores, which can be related with the use of Montessori materials for learning such skills while Supplemented and Conventional programs used other, more traditional ways to introduce children with letters. Social problem solving was also scored better in children from Classic Montessori programs. They showed more mature answers when solving problems, for example, for book reading time management. On the other hand, one test in which the scores did not show big differences is the Theory of mind task.

The results obtained in this and many other Montessori-based studies are very important for parents when considering school choices. Lillard (2012) states that there is no certain conclusion for analyzing the performance and scores that children in Classic Montessori programs show. In other words, we cannot state with certainty the real reason why children in Classic Montessori programs show better results in the tested areas unlike Supplemented and Conventional programs. There is still significant research to be done similar to Lillard's (2012) that could further clarify the impact of Montessori pedagogy on children's ability to gain certain executive functions.

7. CONCLUSION

The research studies reported in this thesis show the ways in which Montessori pedagogy is implemented in educational institutions and mainly focus on its inviting sides. Montessori kindergartens are based on the motto "Help me do it myself!". Therefore, minimal assistance from adults is emphasized as well as high quality and varied Montessori didactic materials used to teach children math, language literacy, social skills, fine arts and more. Finally, as some authors propose that Montessori pedagogy is still under-promoted and that parents still lack a complete insight into its functioning and its benefits for children, they recommend improvement in this aspect of Montessori education.

Studies conducted by Kinney Murray (2008) and Hiles (2015) highlight the importance of further promoting Montessori preschools not only to parents, but also to the wider education community to include as many parents as possible in Montessori communities and enroll children in such kindergartens. Furthermore, these kindergartens encourage integration and incorporation of certain Montessori principles into daily activities in the family environment, such as more independent involvement of children in preparing daily meals, cleaning the house etc. Montessori principles emphasize the importance of independence for children because they grow up with different abilities than those children who are in no way involved in home chores.

Namuddu et al. (2019) and Walls (2018) cited the effects of implementing Montessori pedagogy in daily routine activities and linked them to the development of children's independence and self-regulation. Their research confirmed that encouraging parents to engage their children in daily activities proved to be beneficial and positive for children. After a while, the children showed greater interest in performing certain activities in the home and assisting their parents, and in addition they became more independent.

When talking about the implementation of Montessori pedagogy into early childhood and preschool institutions, it is important to highlight the roles of educators in the educational system, especially that of encouraging co-operation among children. In addition, Maria Montessori emphasized the importance of ensuring that every child has equal rights and educational opportunities and therefore

encouraged the inclusion of children with disabilities in Montessori programs. Research conducted by Danner and Fowler (2015) and Sablić et al. (2015) examined these topics. Danner and Fowler (2015) mentioned the aspect of inclusion of children with disabilities into the Montessori program and its importance, and investigated teachers' views on the inclusion of children with disabilities into Montessori programs. The authors showed that Montessori preschool teachers do not have much experience working with special needs children unlike non-Montessori teachers who have had more practical experience and have shown different and greater abilities in working with these children. Despite the differences, all teachers aspire to be the best educators. That being said, they are doing their very best to include children with disabilities in the regular preschool program.

In connection with this research is the topic of teachers' attitudes about the physical and material environment and its benefits for the development of children and their abilities. Rački et al. (2015) discussed the importance of the proper use of materials in Montessori programs and presented in-service and pre-service teachers' opinions about them. Teachers evaluated the materials on the basis of their characteristics such as how easy they are to make and use, whether they are motivating enough for children etc. Research has shown that most participants considered Montessori didactic materials useful enough for everyday use.

Montessori programs are also believed to greatly influence IQ levels of children. Ahmadpour and Mujambar (2015) conducted a study involving 5-year-old children and tested their IQ levels. The children who attended Montessori schools had better foundations and a better long-term effect for developing certain skills that traditional kindergartens could not transfer in such a way. Therefore, it may be concluded that the results of this study confirmed the advantages of Montessori programs.

Talking about the positive effects of Montessori pedagogy on early childhood education, it is important to mention Kayılı and Arı's (2016) research on the impact of Montessori programs on stimulating social skills development and understanding feelings and empathic behavior in early childhood and preschool children. The results of the research showed that the combination of Montessori programs and

other programs for the development of social skills significantly affected the understanding and comprehension of both child's own and others' feelings.

Montessori kindergarten programs have also been found to greatly foster the development of language and speech skills. Franc and Subotić (2015) investigated how and to what extent Montessori pedagogy promotes and encourages the development of speaking and language skills in early childhood and preschool age. Their study compared differences in knowledge and phonological awareness of early childhood and preschool children in Montessori and traditional kindergartens. The results confirmed that children who attended Montessori preschool programs were better acquainted with certain language materials and were more familiar with grammatical aspects of speech due to didactic materials and approaches to language learning.

The importance of the impact of the Montessori program on early childhood and preschool children is in the implementation of Maria Montessori pedagogy and the fidelity of achieving it while learning. The most important for the implementation of these principles are the educators themselves. A study conducted by Lillard (2012) discussed the importance and differences in learning success of children attending two different Montessori programs and classical programs based on the fidelity of the Montessori principles and their implementation. The author emphasized that implementation and fidelity are very important for the final outcome. Therefore, one of the important aspects in this research was the observation of educational institutions and their material and physical environment. In her research, the author showed that classical Montessori programs lead to the best results, but also emphasized the need for further research into why that is so.

If we were to talk about the advantages and disadvantages of Montessori pedagogy, its principles, and an all-encompassing way of learning, we could list many of them only on the basis of the analyzed materials. The positive aspects of Montessori pedagogy lie precisely in the ways in which the relationship is created between the child and the environment, but also between the child and the educator. Maria Montessori and many authors cited in this thesis emphasize the importance of a prepared environment that not only encourages independent learning but also ways of independent, logical thinking about ways to solve problems and deal with them.

Open environment allows for freedom of choice and indefinite time in learning through activities. The previously mentioned and explained principles, which are the foundation of Montessori pedagogy, enable positive action towards the improvement of knowledge and abilities in both kindergarten and family environment.

REFERENCES

1. Ackerman, D. (2019). *The Montessori preschool landscape in the United States*. Retrieved from https://eric.ed.gov/?q=montessori+&id=EJ1238325

2. American Montessori Society (2020). *History of Montessori.* Retrieved from https://amshq.org/About-Montessori/History-of-Montessori

3. At home with Montessori (2020). *Montessori curriculum areas.* Retrieved from http://athomewithmontessori.ca/montessori/curriculum/

4. Berčnik, S., & Devjak, T. (2017). Cooperation between Parents and Preschool Institutions through Different Concepts of Preschool Education. *Center for Educational Policy Studies Journal, 7*(4), 207-226. Retrieved from https://files.eric.ed.gov/fulltext/EJ1165366.pdf

5. BrainyQuote (2001-2020). *Maria Montessori.* Retrieved from https://www.brainyquote.com/search_results?q=Maria+Montessori

6. Feez, S. (2010). *Montessori and early childhood: a guide for students.* Retrieved from https://journals.sagepub.com/doi/abs/10.1177/1468798410391766

7. Gutek, G. L. (Ed.) (2004). *The Montessori Method*. Lanham, Boulder, New York, Toronto, Oxford: The Rowman & Littlefield Publishing Group. Retrieved from https://epdf.pub/the-montessori-method-the-origins-of-an-educational-innovation-including-an-abri.html

8. Hiles, E. (2018). Parents' reasons for sending their child to Montessori schools. *Journal of Montessori Research, 4*(1). Retrieved from https://files.eric.ed.gov/fulltext/EJ1179830.pdf

9. Hollis Montessori Preschool (2018). *Montessori basics: What is Montessori work period?* Retrieved from https://hollismontessori.org/blog/2018/2/15/montessori-basics-what-is-the-montessori-work-period

10. How we Montessori (2016). *The five key learning areas of Montessori.* Retrieved from https://www.howwemontessori.com/how-we-montessori/2016/07/the-five-curriculum-areas-of-montessori-.html

11. Isaacs, B. (2007). *Bringing the Montessori approach to your early years' practice.* London & New York: Routledge Taylor and Francis Group. Retrieved from

https://epdf.pub/bringing-the-montessori-approach-to-your-early-years-practice-bringingto-your-ea.html

12. Maria Montessori Preschool (2020). *Sensitive Periods.* Retrieved from http://montessorisaskatoon.ca/sensitive-periods/

13. Montessori Academy (2017). *What is freedom within limits?* Retrieved from https://montessoriacademy.com.au/montessori-freedom-within-limits/

14. Montessori Academy (2020). *Principles of Montessori education*. Retrieved from https://montessoriacademy.com.au/montessori-education/montessori-principles-education/

15. Montessori Australia (2020). *Biography of Dr. Maria Montessori.* Retrieved from https://montessori.org.au/biography-dr-maria-montessori

16. Montessori in real life (2019). *What are sensitive periods?* Retrieved from https://www.montessoriinreallife.com/home/2019/3/27/sensitive-periods

17. Nacionalni kurikulum za rani i predškolski odgoj i obrazovanje (NKRPOO). (2014). Zagreb: Republika Hrvatska Ministarstvo znanosti, obrazovanja i sporta. Retrieved from

https://www.azoo.hr/images/strucni2015/Nacionalni-kurikulum-za-rani-i-predskolski-odgoj-i-obrazovanje.pdf

18. Phillips, S. (1999). *Montessori priprema za život: odgoj neovisnosti i odgovornosti*. Jastrebarsko: Slap.

19. Robertson, C., & Salter, W. (2016). *The phonological awareness test 2 (Prezi).* Retrieved from https://prezi.com/da4stiffgfjt/the-phonological-awareness-test-2/

20. Roopesh, N. B. (2019). Vineland Social Maturity Scale: An Update on Administration and Scoring. *Indian Journal of Clinical Psychology*, 46 (2), 91-102. Retrieved from

https://www.researchgate.net/publication/338853793_Vineland_Social_Maturity_Scale_An_Update_on_Administration_and_Scoring

21. Seitz, M., & Hallwachs, U. (1996). *Montessori ili Waldorf? Knjiga za roditelje, odgojitelje i pedagoge*. Zagreb: Tipotisak.

22. Smith, M. K. (1997). *Maria Montessori and education.* Retrieved from http://infed.org/mobi/maria-montessori-and-education/

23. Snow, C. E., Burns, M. S., & Griffin, P. (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press. Retrieved from https://files.eric.ed.gov/fulltext/ED416465.pdf

24. Subotić, S. (2011). Konstrukcija testa fonološke osvještenosti na srpskom jeziku. *Primenjena psihologija, 2,* 127-149. Retrieved from https://www.researchgate.net/publication/306371072_Konstrukcija_testa_fonoloske_svijesti_na_srpskom_jeziku

25. The Editors of Encyclopaedia Britannica (n.d.). *Maria Montessori, an Italian educator*. Retrieved from https://www.britannica.com/biography/Maria-Montessori

26. The JvR Africa Group. *Raven's Coloured Progressive Matrices™ (CPM).* (n.d.). Retrieved from https://jvrafricagroup.co.za/catalogue/ravens-cpm

LIST OF JOURNAL ARTICLES

1. Ahmadpour, N., & Mujambar, A. K. (2015). The Impact of Montessori teaching method on IQ levels of 5-year old children. *Procedia - Social and Behavioral Sciences, 205,* 122–127. Retrieved from https://www.sciencedirect.com/science/article/pii/S1877042815050557

2. Danner, N., & Fowler, A. S. (2015). Montessori and non-Montessori early childhood teachers' attitudes toward inclusion and access. *Journal of Montessori Research, 1*(1). Retrieved from https://journals.ku.edu/jmr/article/view/4944

3. Franc, V., & Subotić, S. (2015). Differences in phonological awareness of five-year-olds from Montessori and regular program preschool institutions.

In *Researching Paradigms of Childhood and Education*, (pp. 12-20). Zagreb: Faculty of Teacher Education University of Zagreb. Retrieved from http://personapsiho.com/wp-content/uploads/2015/03/Franc-V.-Subotic-S.-2015.-Differences-in-phonological-awareness-of-five-year-olds-from-Montessori-and-regular-program-preschool-institutions.pdf

4. Hiles, E. (2015). *Measuring parent perception and understanding of Montessori education in three Massachusetts Montessori schools*. (Doctoral dissertation). Pepperdine University Graduate School of Education and Psychology. Retrieved from https://search.proquest.com/openview/bf60d3b8978520df117fabc26cdb9f65/1?pq-origsite=gscholar&cbl=18750&diss=y

5. Kayılı, G., & Arı, R. (2016). The Effect of Montessori Method Supported by Social Skills Training Program on Turkish Kindergarten Children's Skills of Understanding Feelings and Social Problem Solving. *Journal of Education and Training Studies*, *4*(12), 81-91. Retrieved from https://files.eric.ed.gov/fulltext/EJ1120176.pdf

6. Lillard Stoll, A. (2012). Preschool children's development in classic Montessori, supplemented Montessori, and conventional programs. *Journal of School Psychology*, *50*(3), 379-401. Retrieved from https://www.sciencedirect.com/science/article/pii/S0022440512000039

7. Murray Kinney, A. (2008). *Public perceptions of Montessori education.* (Doctoral dissertation). Department of Psychology and Research in Education and the Faculty of the Graduate School of the University of Kansas. Retrieved from https://www.slideshare.net/Alanevans25364/public-perception-of-montessori

8. Namuddu, B., Vance, E., & Litton, V. (2019). *The Effects of Implementing Montessori at Home on Children's Independence and Self-Regulation in a Montessori Classroom*. (Master's thesis). Saint Catherine University, St. Paul, Minnesota. Retrieved from http://sophia.stkate.edu/maed/294

9. Sablić, M., Rački, Ž., & Lesandrić, M. (2014). Teachers' and students' evaluation on selected didactic materials according to the Maria Montessori

pedagogy. *Croatian Journal of Education, 17*(3) *755-782.* Retrieved from https://hrcak.srce.hr/index.php?show=clanak&id_clanak_jezik=216279

10. Walls, K. J. (2018). To What Extent Do Parents of Montessori-Educated Children "Do Montessori" at Home? Preliminary Findings and Future Directions. *Journal of Montessori Research, 4*(1). Retrieved from: https://files.eric.ed.gov/fulltext/EJ1179824.pdf

IZJAVA O SAMOSTALNOJ IZRADI RADA

Ja, Marta Brcko izjavljujem da sam ovaj završni rad izradila samostalno, da je rad izvorni rezultat mojeg rada te da se u izradi istoga nisam koristila drugim izvorima osim onih koji su u njemu navedeni.