

Self-efficacy perceptions of teachers on using the Montessori method in special education in North Cyprus

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Abstract

The aim of this study is to determine the self-efficacy perceptions of special education teachers about the use of the Montessori method by a valid and reliable scale developed by the researcher. The model of the research is a general descriptive model of quantitative research methods. In the 2017–2018 academic year, 67 special education teachers who work under the Directorate of Primary Education of the Ministry of National Education of the Turkish Republic of Northern Cyprus are participated in this research universe, which comprise 29, 12, 20, 4 and 2 teachers from Special Education Application Centre, Special Education and Work Application Centre, primary schools, kindergartens and school for visually impaired, respectively. This study was conducted only with all the special education teachers in the universe not by any sampling method. The general proficiency perceptions of the special education teachers for the use of the Montessori method were at the level of instability. According to the general competency perceptions of the female teachers on the use of the Montessori method, it was found that their responses were more positive than the males.

Keywords: Montessori method, self-efficacy scale, special education.

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1. Introduction

ing the tools and approaches regarding the needs of disabled children (Akcamete, 1998). During the education process of special children, most of them are being taught in general classes, special education classes and special education schools. To increase their academic skills, effective methods and techniques are needed. In accordance with this need, both general and special education teachers who are in charge for education of these children are willing to apply effective methods and techniques to increase the academic skills of these students (Elicin, Dagseven Emecen & Yikmis, 2014). There are several approaches for education of special needs' students and one among them is the Montessori method. Within the Montessori method, it is supposed that the child can move by listening to his inner voice so that he can perform the learning besides the self-controlling (Dogru, 2009).

The Montessori method is a self-contained and evolving educational system that aims to give children the freedom to act and develop in an organised environment (Montessori, 1997). Montessori had developed methods to save information from constrained in books and to convey through a concrete method by experiments and integrity at a level that every age group can understand. Based on this objective, Montessori has tried this with the materials she had developed to provide keys for children to access the world. While defining the teachers, Montessori, sorting them from filling and empty bowl in a prepared environment, and assigned as, person in need who meets the will of help me to do it on my own and overcome the barriers that force the children while discovering themselves (Cakiroglu Wilbrandt, 2017). The prepared environment is one of the basic elements of Montessori. The Montessori environment comprises by centralising kid, concerning his needs, interests and skills, providing opportunities for self-proceeding, giving peace, including classroom materials best suites to him, as warm as his home and interesting and creates a sense of ownership. And it is an environment in which every child is described as a universe. The education environment (classroom, materials and social environment) should support the learner to realise the self-management training. Montessori is a methodology for fulfilling tasks at every development stage of children and had improved tools based on the principles of that methodology. According to Montessori, materials are the most important tools for self-training and use those specially designed materials (Korkmaz, 2015; Williams, 1996). There are separated learning areas in Montessori and each has material groups among them. These are daily life skills area and its materials, sense skills area and its materials, language learning area and its materials, Maths learning area and its materials and finally cosmic learning area and its materials. When the Montessori method searched among literature, the master's thesis of Kinik (2018) was seen to mention the effect of Montessori-based individual learning programme to increase the problem-solving skills of special education need children. The research has shown that the children who had Montessori-based individual learning programme succeeded a significant difference between pre- and pro-tests, and the experimental process confirmed that children's self-care skills, psycho-motor skills, language and speaking skills and their attention duration to an activity have increased.

Erben (2005) has studied the effects of Montessori materials on receiving language and visual perception of mentally deficient and hearing-impaired children. At the end of the study, she found that the Montessori materials had a positive contribution to receiving language and visual perception of mentally deficient children. Yildirim Dogru (2015) has studied the effects of Montessori materials to attention and concentration of children with ADHD. At the end of the study, he found that Montessori materials have a positive impact on children's attention and concentration skills. Kayili & Gonen (2018) regarding their results, by using Montessori materials, graduated guidance technique and medium-level mentally deficient children have contributed to gain fine motor skills, maintain it and generalise it. Toran (2011) found the results after searching the Montessori training method's effects on the concept acquisition, social adaption and fine motor skills of 4- to 6-year-old children. The Montessori method has a positive influence on concept acquisition, social adaption and fine motor skills. Biewer (1997) has studied the inclusion of disabled students to the classrooms, where Montessori pre-

primary methods applied. Within this study, he observed that Montessori materials have a positive impact on disabled students. With this study, the planned self-efficacy perception of teachers scale the use of the Montessori method in special education, which is aimed to define the perception level of special education teachers using Montessori methods in classroom applications.

The general objective of this study is to determine the self-efficacy perception of teachers about the use of the Montessori method in special education. Through a valid and reliable scale developed by the researcher answer to the following questions have been sought in accordance with the general objective.

1. How is the self-efficacy perception of special education teachers to use of the Montessori method?
2. Is there any significant difference between self-efficacy of special education teachers about the use of the Montessori methods according to their;
 - a. Gender,
 - b. Disabled group which they work with,
 - c. Does it make difference regarding the number of students they work with?

2. Methodology

2.1. Model of the study

Based on the aim of the study about defining the self-efficacy perception of the teacher using Montessori methods, a quantitative research model – general survey model – has been applied. Survey model is an approach, which defines a situation in the past and still exists in the present (Buyukozturk, Cakmak, Akgun, Karadeniz & Demirel, 2017).

2.2. Population and sample

The population of this study includes 67 special education teachers from schools of NCTR MONE in 2017–2018 Primary Education Department, 29 teachers from Special Education Application Centre, 12 teachers working at Special Education and Work Application Centre, 20 teachers working at primary schools, 4 teachers at pre-primary schools, 2 teachers from school for visually impaired. In this study with no exception, the special education teachers in the population have been consulted for the survey.

2.3. Data collection tool and analysis

In this study, the self-efficacy perception scale of using Montessori methods by special education teachers has been used, which is developed by the researcher. Statistical Package for Social Sciences SPSS 24.0 version has been used for statistical analysis. The significant level of the statistics was considered as 0.05. Pre-analysis was performed with SPSS for the homogeneity test of the data. The Kolmogorov–Smirnov test was used to obtain the normality of distribution ($p > 0.05$). Mean and standard deviation values are given for the explanations of the items of the scales. Although the significance of the differences between the mean scores was tested in the study, Mann–Whitney U test was used for independent samples when the variable has two subgroups. The Kruskal Wallis H test was used to test whether the difference between the sample mean of the unrelated two was significantly different or not (Buyukozturk et al., 2017).

3. Findings

3.1. How is the self-efficacy perception of special education teachers' about the use of the Montessori method?

The self-efficacy perception of special education teachers' about the use of Montessori methods is given in Table 1.

Table 1. The self-efficacy perception of special education teachers' about the use of Montessori methods

	Items	\bar{X}	SS
1	With the Montessori method, I can offer my students the opportunity to choose their own activities.	3.50	0.785
2	In my lessons, I can make my students progress at their own pace with the Montessori method.	3.47	0.765
3	With the Montessori method, I can offer my students the freedom to choose activities and materials in the classroom.	3.47	0.910
4	With the Montessori method, I can provide my students with an environment of freedom to choose whom they want to work with.	3.35	0.899
5	With the Montessori method, I can create an environment of freedom for my students to take breaks and to meet their needs at any time after they start any work.	3.23	0.938
6	In the learning environments where Montessori education is practiced, I can create an environment for my students in line with the approach that children can move freely and leave the classroom whenever they want.	2.85	0.941
7	I can create a classroom environment where discipline can be achieved by offering freedom to my students with the Montessori method.	3.22	0.670
8	With the Montessori method, I can handle my lessons with an approach that puts the child to the centre.	3.65	0.789
9	I can use the Montessori method for the purpose of discovery and emancipation of the child.	3.47	0.823
10	I support my students with the principle of help me to do on my own in Montessori education.	3.49	0.823
11	I can apply my lessons in accordance with the basic principles of the Montessori approach.	3.34	0.686
12	I can do the necessary research to improve myself on the Montessori method.	3.71	1.02
13	I believe that I can apply the trainings I received about the Montessori method in my lessons.	3.46	0.942
14	In my lessons, I can apply the Montessori method without difficulty.	3.13	0.902
15	I show my sensitivity towards my students when using Montessori materials to ensure that they are meticulous and that they are not used out of the purpose of the materials.	3.67	0.786
16	Thanks to the principle of error control of Montessori materials, I know that my students have the opportunity to evaluate their own learning.	3.34	0.897
17	Due to the principle of error control of Montessori materials, I know that my students can work independently without the consent of any adult.	3.17	0.886
18	I know that the Montessori approach, which is effective and effective in children with normal development, is also effective in children with special needs..	3.28	0.917

19	With the Montessori method, I have enough equipment to help children with special needs develop their effective learning and study skills.	2.74	1.10
20	I have enough equipment to support the motivation of the students who need special education and to use Montessori materials at the increasing point.	2.47	0.990
21	I support the development of children with special needs by using the Montessori method in many ways.	3.26	0.863
22	I provide the required skills that are a must in special education by using the Montessori method.	3.14	0.701
23	In special education schools which are implementing the Montessori method, I create environments that support children with special needs in the same environment as their normally developed peers.	3.47	0.704
24	I use the Montessori method as an alternative to the classical methods used in special education.	3.11	0.844
25	In my lessons, I use the Montessori method and materials for my students to gain daily life skills.	2.98	0.861
26	In my lessons, I use the Montessori method and materials for teaching skills that require movement coordination.	2.89	0.889
27	In my lessons, I use the Montessori method and materials for my students to gain self-care skills.	2.92	0.803
28	In my lessons, I use the Montessori method and materials to make them gain the skills to develop a sense of responsibility towards the environment.	2.86	0.868
29	In my lessons, I use the Montessori method and materials for my students to gain visual perception skills.	2.97	0.904
30	In my lessons, I support the development of hand-eye coordination with the Montessori method and materials.	3.00	0.852
31	In my lessons, I support students' colour knowledge with Montessori methods and materials.	2.98	0.825
32	In my lessons, I support the fine-gross motor and muscle development of my students with the Montessori method and materials.	2.95	0.824
33	In my lessons, I use the Montessori method and materials to help students gain skills in auditory perception.	2.91	0.865
34	In my lessons, I use the Montessori method and materials to help students gain mathematical skills.	2.89	0.872
35	In my lessons, I use the Montessori method and materials to help students improve their vocabulary skills to support their speaking skills.	2.89	0.855
36	In my lessons, I use the Montessori method and materials to make my students gain writing skills.	2.79	0.8620
37	In my lessons, I use the Montessori method and materials to help my students gain reading skills.	2.77	0.831
38	I know how to use the Montessori method to support gaining skills in special education.	2.89	0.855
39	I know what Montessori material I can use to help gaining skills in special education.	3.01	0.878
40	I know how to use Montessori materials that will be used to gain skills in special education.	2.92	0.926

When the self-efficacy perception of special education teachers about the use of the Montessori method assessed regarding point average and standard deviation in Table 1, the teacher responses were 'With the Montessori method, I can offer my students the opportunity to choose their own

activities.' I agree rate was (\bar{X} = 3.50; SS = 0.785). Similarly, 'With the Montessori method, I can offer my students the freedom to choose activities and materials in the classroom' (\bar{X} = 3.47; SS = 0.765), 'With the Montessori method, I can offer my students the freedom to choose activities and materials in the classroom' (\bar{X} = 3.47; SS = 0.910), 'With the Montessori method, I can handle my lessons with an approach that puts the child to the centre' (\bar{X} = 3.65; SS = 0.789), 'I can use the Montessori method for the purpose of discovery and emancipation of the child' (\bar{X} = 3.47; SS = 0.823), 'I support my students with the principle of help me to do on my own in Montessori education' (\bar{X} = 3.49; SS = 0.823), 'I can do the necessary research to improve myself on the Montessori method' (\bar{X} = 3.71; SS = 1.02), 'I believe that I can apply the trainings I received about the Montessori method in my lessons' (\bar{X} = 3.46; SS = 0.942), 'In my lessons, I can apply the Montessori method without difficulty' (\bar{X} = 3.13; SS = 0.902), 'I show my sensitivity towards my students when using Montessori materials to ensure that they are meticulous and that they are not used out of purpose of the materials' (\bar{X} = 3.67; SS = 0.786), 'In special education schools which are implementing the Montessori method, I create environments that support children with special needs in the same environment as their normally developed peers.' (\bar{X} = 3.47; SS = 0.704) for those items they signed I agree choice.

Special education teachers stated that they were hesitant about the following items: 'With the Montessori method, I can provide my students with an environment of freedom to choose whom they want to work with' (\bar{X} = 3.35; SS = 0.899), 'With the Montessori method, I can create an environment of freedom for my students to take breaks and to meet their needs at any time after they start any work' (\bar{X} = 3.23; SS = 0.938), 'In the learning environments where Montessori education is practiced, I can create an environment for my students in line with the approach that children can move freely and leave the classroom whenever they want' (\bar{X} = 2.85; SS = 0.941), 'I can create a classroom environment where discipline can be achieved by offering freedom to my students with the Montessori method' (\bar{X} = 3.22; SS = 0.670), 'With the Montessori method, I can handle my lessons with an approach that puts the child to the centre' (\bar{X} = 3.65; SS = 0.789).

Special education teachers stated that they were again hesitant about the following items: 'I can apply my lessons in accordance with the basic principles of the Montessori approach' (\bar{X} = 3.34; SS = 0.686), 'In my lessons, I can apply the Montessori method without difficulty' (\bar{X} = 3.13; SS = 0.902), 'Thanks to the principle of error control of Montessori materials, I know that my students have the opportunity to evaluate their own learning' (\bar{X} = 3.34; SS = 0.897), 'Due to the principle of error control of Montessori materials, I know that my students can work independently without the consent of any adult' (\bar{X} = 3.17; SS = 0.886), 'I know that the Montessori approach, which is effective and effective in children with normal development, is also effective in children with special needs' (\bar{X} = 3.28; 0.917), 'With the Montessori method, I have enough equipment to help children with special needs develop their effective learning and study skills' (\bar{X} = 2.74; 1.10), 'I have enough equipment to support the motivation of the students who need special education and to use Montessori materials at the increasing point' (\bar{X} = 2.47; 0.990), 'I support the development of children with special needs by using the Montessori method in many ways' (\bar{X} = 3.26; 0.863), 'I provide the required skills that are a must in Special education, by using the Montessori Method' (\bar{X} = 3.14; 0.701), 'I use the Montessori method as an alternative to the classical methods used in special education' (\bar{X} = 3.11; 0.844), 'In my lessons, I use the Montessori method and materials for my students to gain daily life skills' (\bar{X} = 2.98; 0.861).

'In my lessons, I use the Montessori method and materials for teaching skills that require movement coordination' (\bar{X} = 2.89; 0.889), 'In my lessons, I use the Montessori method and materials for my students to gain self-care skills' (\bar{X} = 2.92; 0.803), 'In my lessons, I use the Montessori method and materials to make them gain the skills to develop a sense of responsibility towards the environment' (\bar{X} = 2.86; 0.868), 'In my lessons, I use the Montessori method and materials for my students to gain visual perception skills' (\bar{X} = 2.97; 0.904), 'In my lessons, I support the development of hand eye coordination with the Montessori method and materials' (\bar{X} = 3.00; 0.852), 'In my lessons, I support students' colour knowledge with the Montessori methods and materials' (\bar{X} = 2.98; 0.825), 'In my lessons, I support the fine-gross motor and muscle development of my students with the

Montessori method and materials' (\bar{X} = 2.95; 0.824), 'In my lessons, I use the Montessori method and materials to help students gain skills in auditory perception' (\bar{X} = 2.91; 0.865), 'In my lessons, I use the Montessori method and materials to help students gain mathematical skills' (\bar{X} = 2.89; 0.872), 'In my lessons, I use the Montessori method and materials to help students improve their vocabulary skills to support their speaking skills' (\bar{X} = 2.89; 0.855), 'In my lessons, I use the Montessori method and materials to make my students gain writing skills' (\bar{X} = 2.79; 0.862), 'In my lessons, I use the Montessori method and materials to help my students gain reading skills' (\bar{X} = 2.77; 0.831), 'I know how to use the Montessori method to support gaining skills in special education' (\bar{X} = 2.89; 0.855), 'I know what Montessori material I can use to help gaining skills in special education' (\bar{X} = 3.01; 0.878), 'I know how to use the Montessori materials that will be used to gain skills in special education' (\bar{X} = 2.92; 0.926).

Special education teachers' general self-efficacy perception about the use of Montessori methods in 40 items scale was regarded as hesitant and medium level (\bar{X} = 3.13; 0.560).

3.2. Is there a meaningful difference between genders of special education teachers' general self-efficacy perception about the use of Montessori methods?

Table 2. The comparison of teachers' answers about general self-efficacy perception about the use of Montessori methods regarding their genders

	Gender	N	Mean Rank	Rank Sum	U	P
Teachers' general self-efficacy perception about the use of Montessori methods	Female	44	29.38	1,292.50	302.5	0.007
	Male	23	42.85	985.50		

The answers for special education teachers' general self-efficacy perception about the use of Montessori methods were compared according to their genders. A significant difference was found for female teachers after using Mann–Whitney U test in Table 2 ($p < 0.05$). We can say that the answers for general self-efficacy perception of female teachers are more positive than males.

3.3. Is there a significant difference for special education teachers' general self-efficacy perception about the use of Montessori methods in relation with the group of disabled students they work with?

Table 3. The comparison of special education teachers' general self-efficacy perception about the use of Montessori methods with group of disabled students they work with

	Disabled group of study	N	Mean rank	Sd	X ²	P
Special education teachers' general self-efficacy perception about the use of Montessori methods	CP	2	39.00			
	ADHD	2	34.50			
	Visually impaired	2	32.50			
	Mentally retarded	34	33.16	5	1.346	0.930
	Autism and mentally retarded	17	31.76			
	All disabled groups	10	39.85			

Comparing special education teachers' general self-efficacy perception about the use of Montessori methods in relation with the disabled group they work with, as it was mentioned in Table 3 by using Kruskal Wallis-H test, there was no meaningful difference found ($p > 0.05$). That means apart from the disabled group they work with, the teachers answer for general self-efficacy perception about the use of Montessori methods, were similar.

3.4. Is there a significant difference between special education teachers' general self-efficacy perception about the use of Montessori methods and the number of students they work with?

Table 4. Comparison of special education teachers' general self-efficacy perception about the use of Montessori methods and the number of students they work with

	Number of students	N	Mean rank	Sd	X ²	P
Special Education teachers' general self-efficacy perception about the use of Montessori methods	3-8	47	32.71			
	9-14	15	37.53	2	0.735	0.692
	15 and over	5	35.50			

There was no significant difference between special education teachers' general self-efficacy perception about the use of Montessori methods and the number of students they work with, mentioned in Table 4 after Kruskal Wallis H test ($p > 0.05$). That means disregarding the number of the students they work with the teachers' answers were similar.

4. Conclusion and discussion

Special education teachers' general self-efficacy perception about the use of Montessori methods in a 40-item scale was regarded as hesitant and medium level. Female teachers' answers to general self-efficacy perception about the use of the Montessori method were more positive than male teachers. But the disabled group they work with and the number of students did not make any difference about self-efficacy perception about the use of the Montessori method.

When evaluated according to the average and standard deviation of each item regarding the self-efficacy perceptions of special education teachers about the use of the Montessori method, the teachers can process their lessons with the Montessori method in an approach that puts the child to the centre and showing sensitivity towards students when using Montessori materials to ensure that they are meticulous and that they are not used out of purpose of the materials is at a good level.

Mutlu, Ergisi, Butun Ayhan and Aral (2012) in their Montessori education they searched Montessori education in pre-school children and the effect of education development areas. It was emphasised that the Montessori method supported the child's development in the Montessori educational practices and the development of the child by putting him to the centre in relation with the characteristics of the materials used and the educational approach. The materials that the children are working with are similar to real materials and the findings about their one-to-one studies support the development areas of children.

Special education teachers are able to create an environment for the students in the context of the Montessori education, to help the children with special needs to develop their effective learning and working skills, to have the necessary equipment to support the motivation of the students who need special education, to use the Montessori materials to have the principle of error control and efficacy to use the Montessori methods and materials, compared with the other items being in a medium level, and state a problem.

Marks (2017) in her study compared national curriculum and Montessori approach to help learning of pre-school children with autism. At the end of the study, they found that the Montessori method is better for the children with Autism at pre-primary school living in England.

Lane-Barmapov (2016) aimed to obtain a practical result from the studies at a Montessori school for the teachers working with children with Asperger Syndrome at Canada Athabasca University. The study has implemented with seven experienced Montessori teachers. Although there was development in social skills of children, it was also emphasised that being a good observer, having extra trainings and cooperating with other therapists are important for the teachers who took part in this study.

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