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MATERIALS AND (LANGUAGE) LEARNING ENVIRONMENT BASED ON MONTESSORI CONCEPTS

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Abstract
Montessori Education is widely spread in almost all countries in the world. Even though this school is meant for all kinds of learners including "normal" learners, the Montessori education concepts used in Montessori schools will be very supportive education for children with special needs. Therefore, the schools which adopt Montessori education concepts can facilitate inclusion, especially with the concepts of 'I can do it myself.' Inclusive education needs to be carefully prepared and implemented by schools. The movement brings about some challenges for teachers. This paper explores the environment and materials based on Montessori education concepts. The environment and materials are suitable for all types of learners and thus can be an option to be implemented in the inclusive education setting. Teaching materials rooted in Montessori education concepts indeed cater all ages and embrace the needs of all students.

Keywords: inclusive education, environment, learning materials, Montessori education concept

Introduction

Dealing with the movement of inclusive education, today's teachers have to meet the "diverse needs of all students" (Baker, 2005, p. 51) including those with special needs. And that is not easy. There are many aspects to think about to implement teaching in the inclusive education. Lapp, Flood, Fisher, Sax, and Pumpian (1996, p. 580) pointed out some questions, fears, and assumptions faced by the teachers; how to support students with all types of disabilities, whether they are qualified to address learnings, emotional, and physical challenges, whether they are cheating the students with disabilities, or cheating other students academically or socially (1996, p. 580). They further concluded that those teachers encounter personal dilemma; they embrace the philosophy but have difficulties with the implementation.

In fact, these kinds of fear of cheating the students with disabilities, or cheating other students academically or socially should not hinder the implementation of the inclusive education since there is a clear statement from UNESCO about the curriculum flexibility mentioning that "28. Curricula should be adapted to children's needs, not vice-versa. Schools should therefore provide

curricular opportunities to suit children with different abilities and interests." And "29. Children with special needs should receive additional instructional support in the context of regular curriculum not a different curriculum" (p. 22).

Lapp et al. (1996, p. 580) state that there were some labels of integration model of education, namely "full inclusion, inclusive education, heterogeneous schooling, or supported education." However, in this paper, any of those labels are name inclusive education only.

Many studies have revealed different successful and fail stories related to inclusive education and still there have been pros and cons on this concept of education; among others are studies done by Roger, Soodak, and Norwich. Roger (2007, p. 55) mentions some parents' negative feeling resulted from the expectation of mainstream education. Soodak (2003) and Norwich (2014) mention the benefits of inclusion related to teachers' flexibility to identify classroom management policies and practices that promote diversity and community. Department for Education and Skills of the United Kingdom (2004) as mentioned by Hodkinson (n.d., p. 253) underlined that the "major success criterion of inclusion policy was that learning environment should value and welcome all children." One of the education concepts whose learning environment obviously welcome all children is Montessori Education concepts.

Theory

Gutek mentions that Montessori education is based on "the liberty of the pupils in their spontaneous manifestations" (2004, p.108). A Montessori education is an educational approach developed by Italian physician and educator Maria Montessori. The reason why students with special needs develop successfully when learning using Montessori concept is that the concepts developed by Dr. Maria Montessori are based on her "continuous observation of the movements and abilities of children with all manner of social, emotional, physical and cognitive disabilities" (Fidler, 2007, p. 36). She, therefore, designed specific "pieces of apparatus to stimulate sensory-motor activities through which children's brains and muscles would work in integrated coordination, resulting in better self-regulation, social skills, confidence and independent thought and action" (Fidler, 2007, p. 36).

With her background in medical area, Maria Montessori "developed a deep interest in children with learning disabilities …." (CasaVera Montessori School, 2007). Montessori believed in the value of manipulative materials and age-sensory stimulation in helping disabled students. She created a very different environment. "The new environment empowered her disabled students to take care of themselves and learn sufficient skills to pass a public examination for "normal" children" (CasaVera Montessori School, 2007). Therefore, children with special needs may benefit from Montessori educational philosophy and carefully structured Montessori environment.

Montessori philosophy covers many aspects. However, this paper is only going to describe materials and environment set in Montessori Education concept and explain why they are suitable for certain types of learning disabilities. In addition, the discussion is limited to materials rooted from the Montessori

education concepts for three types of disabilities namely hearing impairment, dyslexia, and Attention Deficit Hyperactivity Disorder (ADHD).

Theory Application

Education environment setting in Montessori education concept

Montessori believed that moving and learning were inseparable. Therefore, learners must involve their entire body and use all their senses in the process of learning. They need to be given opportunities in the learning process for looking, listening, smelling, touching, tasting, and moving her body (American Montessori Society, 2016). That is why the environment is also set to facilitate the belief.

The environment of Montessori education is commonly in the same design in any Montessori school. For specific additional environment setting related to each disability, if any, will be elaborated under each further section. Gutek (2004, pp. 108 -110) describes the general Montessori education environment setting as follows. There should be enough playground with a garden. There is open-air space to have direct communication with the schoolroom. The furniture of the classes is designed for certain purpose and is very easy for young learners to move. There should be tables for two children as well as for one child if they need to work alone. It is also facilitated with a washstand equipment, upper and lower shelves. The classes are provided with a series of long low cupboard for the reception of the didactic materials. And the rooms are equipped with attractive pictures. The classroom should present not only "social progress but also universal human progress and are closely related to the elevation of the idea of motherhood, to the progress of woman and to the protection of her offspring" (p. 110).

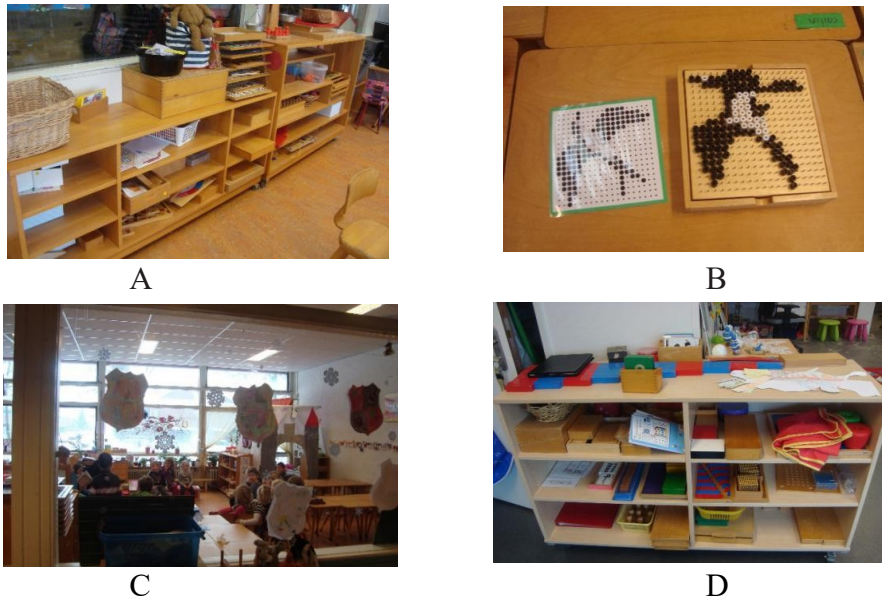


Figure 1. Some Environment Settings in Montessori Education (Private Collection)
A. Shelves to Store the Materials, B. Examples of Materials, C. Student's Story Time with Circle Seat Arrangement, D. Another Shelf to Store the Materials

Montessori Materials for Three Different Disability Types

This section explores Montessori materials for learners with hearing impairment, dyslexia, and Attention Deficit Hiperactivity Disorder (ADHD). Hearing impairment is a degree of deafness (Fidler, 2010, p. 42). Learners with this disability have problems with language and communication (Fidler, 2010). To help them in learning the language and to communicate, Montessori materials called Cued Speech can be beneficial. In many other educational concepts, lip-reading activities will be used. However, if the communication is learned through lip-reading activities, the learners will not learn as meaningful as through cued speech.

Fidler mentioned that "Lip-reading involves a lot of guess-work and is very tiring" (2010). Whereas, using cued speech, learners can comprehend "the whole of the spoken language" without guessing. So, how does the cued speech work? It clarifies the lip patterns of normal speech by using eight hand shapes and four positions together with the lip patterns of normal speech. It allows parents and teachers to use their own language in a visual form and in its entirety, thus giving hearing impaired children full to the language.



Figure 2. Teacher Cueing a Story (Fidler, 2010)

Brenner (2005, p. 39) explains that cued speech is the use of eight hand shapes in four positions in combination with the lip shapes of speech to make the phonemes of speech visible. This cued speech can be used with any language. Therefore, it is also good to teach reading. Brenner continues that since "Cued Speech has a phonetic base, it dovetails nicely with the phonetic approach used in the Montessori classroom, and has been proven to greatly increase the literacy of people who are deaf" (2005, p. 39). Figure 2 shows a teacher uses cued speech to help her narrate the story for the learner and Figure 3 is examples of cued speech.

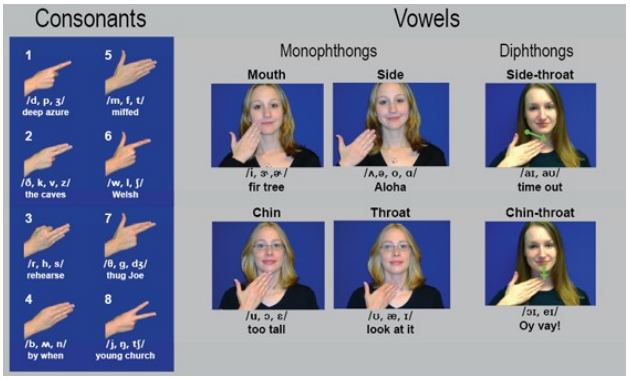


Figure 3. Examples of Cued Speech

Dyslexia is disability related to difficulty with words (Fidler, 2004, p. 32). It is a learning difficulty that hinders learning mainly affecting literacy skills (2008, p. 38). Fidler mentions that "dyslexic children can learn effectively but often need a different, multi-sensory teaching approach, …" (2004, p. 32). The children might feel many difficulties, some of which are "poor speech development, hesitant reading, misreading, leading to poor comprehension, erratic spelling, sequential difficulties, e.g. setting dates or event in order, confusion between left and right, difficulty dressing, poor organization and/or time management, difficulty organizing thoughts clearly" (Fidler, 2004, p. 32).

The purpose of having classrooms with various kinds of equipment is to have balanced stimuli of senses for the learners. So by "touching the letters and looking at them at the same time, fixes the image more quickly though co-operation of the sense". Then, the activities related to the use of eyes, namely seeing, looking, observing, become *reading* whereas the things related to hand activities are for *writing*. Dealing with dyslexic learners, materials should aim to train them to develop and coordinate their motoric skills (in this case hand) and their eyes. As a result, they will be ready to read with trained eyes and to write with a more trained hand.

Further, there are also materials rooted in Montessori education concepts which can support the learners' speaking and writing development for learners with dyslexia. First, pincer, lifting and lowering movements using knob-bed and knob-less cylinders and jigsaws. Second, whole arm and hand bowing movements tracking left to right across the body mid-line with the long rods and number rods. Third, squeezing and directing the hand during scissor work. Fourth, matching, grading and sequencing; refining perception and classification skills using geometric or botany cards. Fifth, practical life involving spooning, pegging, twisting, turning and scribbling movements (Fidler, 2004, p.33).

The Montessori education concept also highlights the written and oral language development. The material used is the shape and sounds of lower case letters, as shown in Figure 4. After the dyslexic students develop their muscles for writing, students can learn the shape and the sound of lower case letters. Montessori materials use the color pink or red for consonants and blue for vowels

(Fidler, 2004, p.33). The learners can be asked to do the following activities, namely tracing and sounding out letter shapes on sandpaper letters; in rice, flour or jelly, with paint and in the air during dance; identifying the initial sounds of everyday objects; playing 'eye spy', using only a small tray of phonically correct objects to maintain control of error; identifying letters within the environment, for example on alphabet friezes, in books and on name labels (2004, p. 33).



Figure 4. Learning the Lower Case (Source: Fidler, 2004, p. 34)

The next materials are the tracing apparatus known as the insets for design. The learners can be trained to avoid left and right confusion and develop the neurological pathways for reading and writing (p. 34).

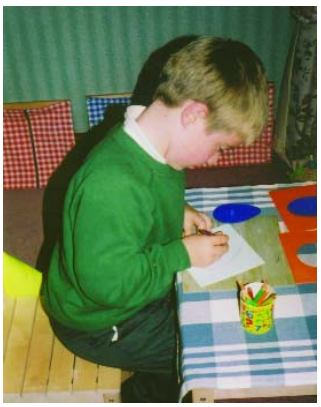


Figure 5. The Insets for Design to Support Reading & Writing Development (Fidler, 2004, p. 32)

Learners build on their understanding of initial sounds and early blends as they work through reading materials, which include a graded range of phonically correct words. As children match words with objects and pictures, identify similar sets of words and build on their early sound-blending skills, they: refine the association of visual and muscular-tactile sensations with the letter sound; recognize, compare and perceive the meaning of the string of letters which combine to form words; consolidate their learning through language: their spoken words, or reading, and their actions when successfully matching objects or pictures to written words, confirm their understanding of the meaning of words. In this way, Montessori children have ongoing opportunities to develop and refine their ability to use the words purposefully in meaningful activities, which

increasingly reflect their understanding (p. 35). In addition, Montessori botany materials, as shown in Figure 6, help children master perception and classification skills in addition to promoting language development (Fidler, 2004, p. 34).

As children progress through the foundation stage and into primary schooling, the range of Montessori language and grammar materials for construction and comparison of words, and for composition of sentences both orally and in writing, offers good, progressively structured support for learners with dyslexia (p. 35). Further, learners with dyslexic tendencies can also be helped by using sandpaper letters, large moveable alphabets to be models of literacy teaching, sequencing, rhyming activities, and memory games (2008, p. 38).

Another important aspect in supporting reading ability for learners with dyslexia is the choice of reading topic and contents. The topic should be of the learners' interests so that they will be encouraged to read. In addition, the contents of the reading are essential too. Complicated spellings and the appearance of idioms might not be a good choice for the learners with dyslexia. (p. 35)



Figure 6. Aids to Identify The Initial Sounds of Everyday Objects (Fidler, 2004, p. 34)

This type of disability is related to development issues. The learners with ADHD have problems in controlling their own actions and responses, problems in concentrating and disregarding distractions, problems in integrating sensory perception and problems in participating acceptably during social interactions (Fidler, 2003, p. 22). The Montessori education concept underlines the need to have correct environment for those learners because there is "no 'cure-all' for ADHD as each child has a unique set of responses to neuropsychological and environmental triggers" (2003, p. 22). Therefore, there is a need to have parental, school, and society supports for them. And in the school, Montessori proposed good concepts, among which are the following.

First, Montessori education set the environment for social training. It is better for ADHD learners not to be in the competition setting. So having mixed age group will give lack of competition environment as well as provide shared learning in school. This support successful contacts among peers and children will learn appropriate behavior and adaptive skills (Fidler, 2003, p. 22).

Second, concerning the behavior management, Montessori education highlights the concept of discipline through "a rule of life". They are called a known routine. So the school must set up a good routine to follow but the routine

should extend out into society (Fidler, 2003, p. 22). For example, cleaning up spills, lead the children to respond a socially appropriate way.

Some Montessori materials related to motor skills development can also be used to help students develop their motor skills, focus their attention as well as develop a good self-esteem for themselves. The following materials and activities, using beads for training the fine motor skills as well as the learners' concentration. In addition, pencil work also trains hand and eye control for the learners as shown in Figure 7.

All Montessori materials are designed in multiple physical concepts and multisensory support, the weaker areas are compensated for (Fidler, 2008, p. 38). In addition, they can be done from the elementary to high school and can be used repeatedly. Elementary and high school materials build on the earlier Montessori materials foundation. Learners in higher grades move gracefully into abstract thinking, which transforms their learning. The Montessori materials support responsible interactive learning and discovery (American Montessori Society, 2016).

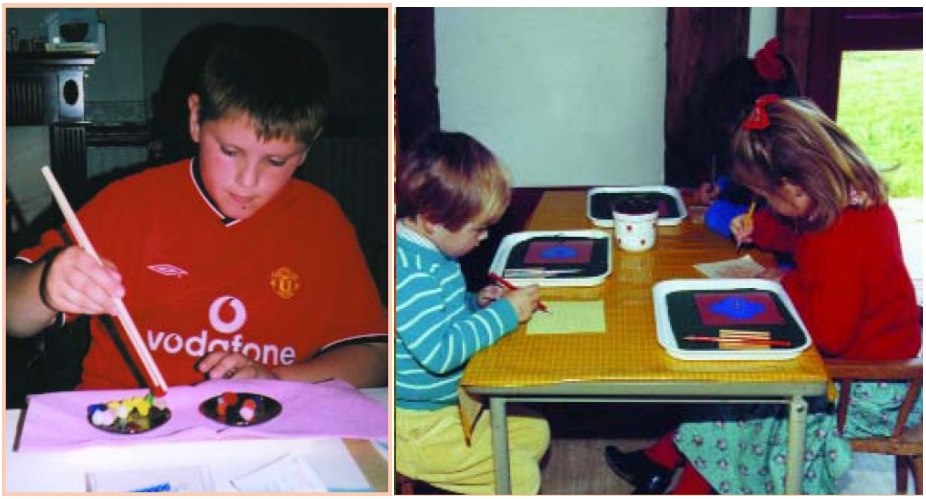


Figure 7. Left, Fine Motor Skills Development; Right, Hand & Eye Control with Pencil Work (Fidler, 2003)

Those materials discussed previously are available in Montessori classes and are used by all learners including learners with disabilities. Gutek (2004, p. 154) mentions that the same didactic materials used by disabled learners "makes education possible" and when it is used by other 'normal' learners, it "provokes auto-education." In other words, the materials can be options for inclusive education.

Conclusion

The common setting for Montessori education concept is classrooms equipped with "a range of multi-sensory literacy aids through which children make audio, visual and motor observations." Teaching materials rooted in Montessori education concepts indeed cater all ages and embrace the needs of all

students. The materials are designed as natural as possible that they may represent the use of our education to the real world context.

References

American Montessori Society. (2016). *Montessori learning materials.* Retrieved from https://amshq.org/Montessori-Education/Introduction-to-Montessori/Montessori-Learning-Materials

Baker, P. H. (2005). Managing student behavior: How ready are teachers to meet the challenge? *American Secondary Education, 33*(3), 51-64.

Brenner, K. (2005). *Montessori and cued speech: Diane Therriault's life changed forever after a car accident.* Madras, MAA: Theosopical Publishing House.

CasaVera Montessori School. (2007). *Children with special needs: Community living Toronto.* Retrieved from http://www.casaverams.com/page.php?id=child

Donovan, H. (2008). *The dyslexic child.* Madras, MAA: Theosopical Publishing House.

Fidler, W. B. (2003). *Attention deficit hyperactivity Disorder: A practical Montessori response.* Madras, MAA: Theosopical Publishing House.

Fidler, W. B. (2004). *Dyslexia: A practical Montessori response.* Madras, MAA: Theosopical Publishing House.

Fidler, W. B. (2007). W*hy do children with special needs thrive in Montessori schools?* Madras, MAA: Theosopical Publishing House.

Fidler, W. B. (2010). *Hearing impairment.* Madras, MAA: Theosopical Publishing House.

Gutek, G. L. (Ed.). (2004). *The Montessori Method, the origins of an educational innovation: Including an abridged and annotated edition of Maria Montessori's the Montessori methods*. Lanham, MD: Rowman & Littlefield Publishers, Inc.

Hodkinson, A. (n.d.) . Inclusion 'All present and correct?' A critical analysis of new labour's inclusive education policy in England. In *Journal for Critical Education Policy Studies, 11*(4), 242 – 262. Retrieved on October 18th , 2016, from http://www.jceps.com/wp-content/uploads/PDFs/11-4-12.pdf.

Lapp, D. F., James., Fisher, D., Sax, C., & Pumpian, I. (1996). Point-counterpoint: From intrusion to inclusion: Myths and realities in our schools. *The Reading Teacher, 49*(7), 580-584. Retrieved on October 18th, 2016, from http://www.jstor.org/stable/20201667

Norwich, B. (2014). How does the capability approach address current issues in special educational needs, disability and inclusive education field?. *Journal of Research in Special Education Needs, 14*(1), 16-21.

Rogers, C. (2007). Experiencing an 'inclusive' education: Parents and their children with 'special educational needs.' *British Journal of Sociology of Education, 28*(1), 55-68. Retrieved from http://www.jstor.org/stable/30036184

Soodak, L. C. (2003). Classroom management in inclusive settings. *Theory into practice, 42*(4), 327-333. Retrieved n October 18th, 2016, from http://www.jstor.org/stable/1477396