

Montessori and the Internet Giants is the Montessori Education, a Success Factor for Innovations for IoT and IT Companies? Could it be the Solution for Rapid Improvements not only in ASEAN Schools?

Andreas Becker¹
and Jarinya Sonvisai²

LisAndi Co.Ltd,

Training and Business Development Center, Thailand

¹andi@lisandi.com, info@montessori-international.com

¹lisandi.com, montessori-international.com

Abstract - Some might think how could Maria Montessori, who lived about hundred years ago, improve the quality of ASEAN (here Thai) Schools especially with focus on preparing students for the Internet of Things, better Math and Science proficiency and much better self confidence to discover and innovate the currently still unknown future. Larry Page and Sergey Brin, the Google Founders, make their Montessori Education responsible for their success. The Wall Street Journal even entitled the Montessori Mafia, discussing a study of Brigham Young University / Utah, “*which found that a disproportionate number of entrepreneurs who started new business or invent new products are Montessori alumni*”.

Julia Child, Anne Frank, Gabriel Garcia Marquez, Jimmy Wales (Wikipedia founder), Jeff Bezos (Amazon Founder) and many more famous and well known people had the chance to visit especially in their early childhood years a school which is following the Montessori Approach: “*Help to do it by myself!*”. A Milwaukee study demonstrated that Montessori students “*have better executive function, problem solving skills, critical thinking skills, better reading and math skills, and are more prepared for elementary school than non-*

Montessori students”.

Alexander Graham Bell, Thomas Edison, Mister Rogers, Woodrow Wilson, Alice Waters, Erik Erikson, Jean Piaget, and others promoted the Montessori Approach.

Montessori schools are spread all over the world. Ecole Nouvelle de la Suisse Romand / Switzerland is starting with Montessori in Kindergarten. It is also collaborating with the Distance Learning Foundation, founded by his Majesty the Late King Bhumibol Adulyadej, who went to ENSR 1935-1945, and having an exchange of teachers with Wang KlaiKangWon School in Hua Hin.

International studies show that schools following the Montessori Approach in Kindergarten and which continue its ideas in primary and even secondary level, inspire their students for a process of lifelong learning and encouraging their students to discover solutions for problems of the world and modern societies.

In my paper, I will point out some possible reasons for the success of students who attended a school which had the Montessori approach implemented with their teachers.

A practical introduction of Montessori principals will round up the presentation and bridging the gap to the 21 century with its IT technology and Internet of Things. Enabling students to think and act by themselves rather than recapitulate the teacher's words, and being able to evaluate the available information and knowledge is already one of the key factors for success. Montessori gives students time and space for discovery which makes things possible!

Keywords - Montessori, Internet Giants, Innovations for IoT, IT Companies



I. INTRODUCTION

I am a teacher myself and have been educational director of an international school in the past before helping schools in Thailand to find better ways of teaching and studying.

The quote: *“Everybody is a genius but if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid”* isn't probably from Einstein but rather the chapter title of a self-help book *“The Rhythm of Life: Living Every Day with Passion and Purpose”* written by Matthew Kelly 1955, but having a look around to our schools I must say that we don't nourish all those geniuses we have in our schools like we could. Instead we try to get them as dry as possible so they will be light weight, easy to handle, not being able to ask questions as they have to focus to survive and brave following in what those in charge identify as the right thing for them to learn. By the way it is the same problem in Germany and many other countries in public schools where I taught for many years.

How has the world changed through all those years schools have been around, and how has education changed?

Have a look to that phone from 1896 - about 120 years ago and compare it with the smartphones we are using today.



Or have a look to that car from over 100 years ago and compare it with the car we are using today.





Things we use every day have most been improved, changed their designs, ways how they have been build changed and so much more happened since their first examples.

Now have a look to a classroom used 100 years ago (Finland 1916, 72 students) and the classrooms used in most Thai schools today?



Students are still subject of uniformity instead of being able to develop their own individual identity with their own thinking skills!

Prince Ea even continues with a devastating comparison between school and a doctor who subscribes all the same medicine to his patients - you might think now that this is already happening as nearly every time you go to a Thai doctor he will subscribe you paracetamol - might be - *“but if a doctor prescribed the exact same medicine to all his patients, the result would be tragic. So many people would get sick yet, When it comes to school, this is exact what happens”*.

He continues by comparing the salaries of doctors and teachers and strongly recommends that *“teachers should earn as much as doctors”*. And he quotes Frederik J. Kelly (1880), who invented standardized testing (Father of Multiple choice tests (1914) like they still get used in O-NET tests here in Thailand!), saying: *“These tests are too crude to be used and should be abandoned”*.

It was the age of uniformity and easy to reproduce products like the Ford-T model (1908-1927). For Kelly an “effective education” meant uniform outcomes. Students as products! Those tests.

Have a look to Finnland where students go to school half a day, teachers are earning a decent salary and home work is not existing. Or check out the situation in Singapore, where students score high in math and sciences. And last but not least have a look to Montessori schools.

II. MARIA MONTESSORI

Born in 1870 in Chiaravelle in Italy Maria Montessori was the first female medical doctor in Italy after she had studied her studies in mathematics and physics before being accepted to study medicine.

Inspired by the works of Friedrich Froebel, Johann Heinrich Pestalozzi, Jean Marc Gaspard Itard, and Édouard Séguin. Especially their studies about children with learning disabilities.

In 1906, she opened up her Casa Dei Bambini. At first her classroom looked pretty

similar to what we see our days at Thai schools too. And also here students had to participate on daily routines already like cleaning the classroom and its facilities, as well as taking care for themselves and the garden. During her work at Casa Dei Bambini implemented practices which became well known as the Montessori principals.

She changed the classroom furnitures to fit the size of the children and she extended her practical daily works children could do. She also introduced a time where students were able to participate in an activity or not. She started to work more and more independently with each child and she continue to improve her materials, which are meanwhile well known as “Montessori Materials”.

The main aim of her education was the independence of her students and she saw the teacher as an observer and director of the children’s development.

From all around the world people came to visit her and in 1913 and 1914 already the first international training courses took place in Rome. 3/4 of the students came from the USA. Already in 1911/12 the Montessori method became well known and popular in the USA. Alexander Graham Bell opened up the second Montessori school on the American continent in Canada. She has been very active in Spain, then India and later on again in the Netherlands where she died in 1952, after she had been nominated 6 times for the Nobel Peace Price in 1949, 1950, and 1951.



III. MONTESSORI METHOD

Mixed age classrooms 3-6, 6-9, 9-12, 12-15, 15-18 years, pretty similar to what we actually have here in Thailand if we would gather all those years mentioned into one classroom.

It is the students choice of activity in a well prepared surrounding. The work time should be mostly about 3 hours without any interruptions.

The materials are designed so that they focus on one difficulty rather on complex combined difficulties first. i.e. the cylinders differ in length, then in width and then in both length and width. The materials and the teacher motivate the students to discover things by themselves, they are allowed to make an unlimited number of mistakes. The teacher is not instructing the students in a direct way, like it is currently happening in most schools all around the world.

The students are free to move around in the classroom, or even in the school in later years. There are no tests written in a Montessori school as long as the student does not want to take a test by him or herself. All materials are designed to be self motivating and self controlled and all materials are made of good materials and build very exact, especially the mathematical materials.

All students choose their work for the day by themselves and work at their own place (carpet or table). Montessori sees the kids as workers! For children it is hard work what we might see as “play” in the same way we would not say that officers in an office would play around as they are working hard too.

In a Montessori classroom all materials are limited to one piece of its kind and they are presented in a well designed order, look beautiful, clean and in harmony.

IV. MONTESSORI PERIODS OF DEVELOPMENT

Maria Montessori describes 4 periods of 6 years in human development until the age of 24 years. The early childhood and kindergarten years where the child undergoes a physical and psychological development and where language plays a major role.

The second period are the Primary school years where kids start working socialized in groups as well as they start developing their own reasoning and imagination.

The puberty describes the third period, which is characterized by instability and concentration difficulties but also a phase of great creativity.

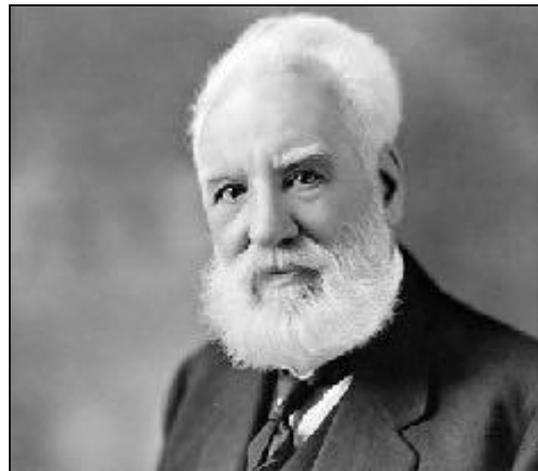
Unfortunately Montessori died too early so she wrote only very little about that period. But she saw her students at that age already being involved in studies of science and cultures which would influence the world. Looking from today's point of view she was absolutely right as otherwise this talk would not exist.

Montessori is meanwhile known worldwide mostly in private schools all around the world but you will find also lots of public Montessori schools, in India, USA, Germany, Netherlands, and in Thailand in 2008 about 80 teachers from public schools got trained in Montessori too.

V. MONTESSORI STUDENTS AND PROMOTERS

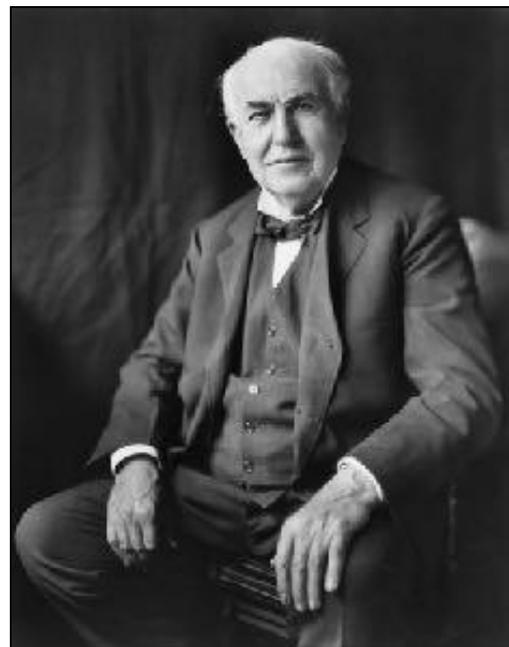
Since over one hundred years students get educated following the Montessori method. Who are those students and promoters you might ask? Let's have a closer look!

A. Alexander Graham Bell (1847-1922)



Alexander Graham Bell was one of the early great supporters of the Montessori method already. In the same time lived Henry Ford (1863-1947) the founder of the Ford Company who revolutionized the assembly line and Thomas Alva Edison.

B. Thomas Alva Edison (1847-1932)



Thomas Alva Edison who was taught by his mother after his teacher thought he could not teach Tom as he would be a slow learner which has difficulties Dyslexia. His mother was so angry about the teacher that she took him out of school and taught him by herself. Later, when he was already in his sixties, he said about the Montessori method:

“I like the Montessori method. It teaches through play. It makes learning a pleasure. It follows the natural instincts of the human being. The present system casts the brain into a mold. It does not encourage original thought or reasoning”.

C. Larry Page and Sergey Brin



“We both went to Montessori school, and I think it was part of that training of not following rules and orders, and being self-motivated, questioning what’s going on in the world, doing things a little bit differently”.

The founders of Google credit their early Montessori Kindergarten Education for their success and not their parents who were both college professors.

D. Jeff Bezos



“I’ve always felt that there’s a certain kind of important pioneering that goes on from an inventor like Thomas Edison”.

The founder of Amazon Jeff Bezos credited his Montessori education for his success.

E. Will Wright



“Montessori taught me the joy of discovery. It showed you can become interested in pretty complex theories, like Pythagorean theory, say, by playing with blocks. It’s all about learning on your terms, rather than a teacher explaining stuff to you. SimCity comes right out of Montessori - if you give people this model for building cities, they will abstract from it principles of urban design” says the inventor of “The Sims” video game.

F. Jimmy Wales



He describes his schooltime, which took place in a small one room school led by his grandmother Erma as “*Montessori influenced philosophy of education*”, where he “*spent lots of hours poring over the Britannicas and World Book Encyclopedias*”.

G. Steve Wozniak



“*Intelligence in our schools is defined as always having the same answers as everyone else. ... think for themselves, that’s called not intelligence. ... we teach, come up with the same answer that everyone else would, ... its being a follower instead of a leader. ... Montessori schools get around with it ... Do some better job with that*”.

The co-founder of Apple credits the way Montessori schools are teaching independent thinking.

H. Further Famous Montessori Alumni

- Anne Frank, Diary writer
- Bill & Hillary, Chelsea Clinton
- Cher Bono, Singer-actress
- Dakota Fanning, Actress
- David Blain, Magician
- Elizabeth Berridge, Actress
- Gabriel Garcia Marquez, Nobel Prize
- George Clooney, Actor
- Helen Hunt, Actress
- Jacqueline Bouvier Kennedy Onassis
- John Bradshaw, psychologist and author
- Joshua Bell, American violinist
- Julia Child, first TV chef
- Kami Kottler, Actress
- Katherine Graham, Washington Post

- Melissa Gilbert, Little House on the Prairie
- Michael Douglas, Actor
- Patty Duke Austin, Actress
- Peter Drucker, Modern management father
- Prince William and Prince Harry
- Sarah Gilbert - Actress - Little House on
- Sean P. Diddy Combs
- Stephen J. Cannell, TV producer-director
- T. Berry Brazelton, Pediatrician
- Yo Yo Ma, UN Peace Ambassador, Cellist
- Yul Brynner, Actor

I. Further Supporters

- Erik Erikson, an anthropologist is a trained Montessori teacher.
- Jean Piaget, a psychologist was head of the Swiss Montessori Society.
- Mister Rogers, children’s TV personality, was a strong supporter of Montessori Education. President Wilson’s daughter was a Montessori teacher and during the time of his presidency there was even a Montessori Classroom in the White House.
- Alize Waters, a well known restaurateur is a trained Montessori teacher.

VI. MONTESSORI SCHOOLS

Since over one hundred years ten thousands of Montessori schools are operating in nearly all countries of the world. I would like to point out one specific school as it is some kind related to Thailand.

After the father of our late king Bhumibol Adulyadej, King Mahidol Aduljadej died on 24 September 1929, Mom Sangwan the Late Kings mother decided to educate her children first in Thailand and after the revolution in 1932 moved to Switzerland in 1933.

She enrolled the Late King in Ecole Nouvelle de la Suisse Romande. This school taught many famous people. Among them:

- Geraldine Chaplin, Charly Chaplin daughter Jacque Piccard - Deep see diver.
- Fouad Farouk - King of Egypt.
- Fernand Auberjonois - American Reporter.



Ecole Nouvelle de La Suisse Romand has Montessori introduced in their Kindergartens and for sure that spirit will continue in the further education program of the school, even it might be no more called Montessori.

While reading about how Mom Sangwan educated her children and how she lived as a great teacher herself I can't put away the similarities to what is called Montessori method and I am more and more fascinated by those.



Wikipedia writes: *"The children had been taught from a young age to be thrifty. They each received weekly pocket money, the amount depending on their age, but never more than was necessary to buy themselves some sweets or chocolates. Other items, such as books and toys, also had to come out of their own pocket money"*.

"A sense of frugality was something that the princess mother practiced throughout her life. Even when she was in a position to pamper herself, she preferred to maintain her simple way of life".

"The children were taught to respect elders and behave properly with other people, and this remained the same despite the change in their status later in life. Along with manners came spirituality and religion. Though she learned about Christianity during her years in the US, she remained a devout Buddhist, and brought her children up in the Buddhist faith".

In a documentary about her streamed on BBC (6:00) it is noted that she educated her children in an environment of fun and stimulation. She gave them a lot of room to discover, to experiment, and to learn on their own pace and time frame. An environment which nourishes a lifelong learning process and which actually get planted in the Kindergartens. This is very similar to what also Larry Page said when he was asked about his success. In another video the love of lifelong learning gets verified by Late Kind Bhumibol himself in another documentary.



It is so fascinating to watch all those videos now, as they provide so much information and ideas about the way a whole nation could be taught.

I really think that if all public Thai schools would start to introduce the Montessori method in their Kindergarten and later Primary and even secondary education, and if mothers and teachers would follow the ideas of how

Mom Sangwan educated their children and how Late King Bhumibol was a creator, an inventor, a great teacher, others could take an example on, the Thai educational system would not suffer on those huge problems in Mathematics and Science or English Proficiency.

When I first came to Thailand as an educational director of an International Montessori School in Phuket. I did actually only get a very small image of how “school” is working in Thailand. But already in that Montessori school. I realized that the students really want to learn and that most of those so called assistant teachers actually want to learn more about how to teach in a better and much more effective way.

Later on, after the Tsunami happened, I was teaching at Dowroong Wittaya School in Phuket and helped in several Tsunami affected schools and everywhere. I got I met students which really want to learn, I met teachers which like to prepare a surrounding for their students and which like to create materials. All schools were equipped with laminators and copy machines and printers. I met students and teachers which came even on the weekend to school - it was just so different from how most of those very well paid teachers in Germany, where I come from, act.

I would say that Thai schools have already everything what would be needed to change those schools into Montessori schools, which nurture the love of lifelong learning, we only would need to teach the teachers about the Montessori way. Many materials can be build with the equipment which is already existing and the classrooms have already open doors!

VII. TEACHER TRAINING

It is very important to have the ability to train teachers to teach the Montessori Way. It is a quite natural approach which teachers would love to follow, but it would be in many cases perhaps just the opposite of what they have learned until now.

In Montessori Schools authority is not build on the power of position someone has but insisted on the power of love. Teachers are very respected people because of their patience, their help they provide for each individual child. Corporal punishment is an absolute no go in Montessori Schools!

A huge benefit of Montessori Schools is that students can switch from any Montessori School in the world to another easily as their approach is always the same.

Several Institutions around the world provide Montessori Teacher trainings beside some local associations. As the training is quite expensive which would exclude those who should be reached to achieve a conversion to the Montessori Methode. I would suggest the German approach.

In Germany only teachers who attended university to be a teacher are allowed to teach in schools. Already at University level students learn about different teaching methods. The Montessori Verein is conducting regular Montessori Courses (Weekends / Holidays).

Teachers get trained in Early Childhood, Kindergarten, Primary and then Secondary School level with the Montessori Approach. After about 1-1/2 years they obtain a national Montessori Diploma. In General the course is following the AMI (Association Montessori International). Guidelines for Montessori Courses, but as all teachers are also real teachers which learned already about pedagogic and child psychology only Montessori related lessons get additional taught and most focus is on practicing the Montessori Method.

VIII. CONCLUSION

I would like to conclude with a Quote of Maria Montessori which says we have to Move!

“Just imagine what a society would be like that was quiet, a society without movement. Think what would happen if all men stopped

moving – if only for one week. What would happen? Everyone would die. It is not a question of social life, but of work. It is not a question of individual gymnastics. If the whole society of men all over the world made nothing but uncoordinated, jerky movements they would die in a short time. All their energies would be consumed for nothing. Society is a complex arrangement of individuals, each of whom moves differently from the other. Keep in mind the construction of the world – each organism moves to suit its own purpose. Imagine what it would be like if all the plants stopped moving. There would be no more fruit or flowers – there would be too much poisonous gas in the air. If everything stopped – if the birds remained motionless in the trees or if the insects fluttered to the ground and remained still, if the wild beasts did not move through the jungle or if the fish stopped swimming in the water – what a terrible world it would be. Immobilization is impossible. Nature gives a useful purpose to each animal. This is the philosophy of movement, all life is movement. Each organism has its own movement for its own purpose. The creation of the world is a harmony of all these purposeful movements”.

- [7] ASEAN International School.
<<https://aseanschool.org>>.
- [8] Partner Schools Community.
<<https://partnerschools.com>>.
- [9] Association Montessori International.
<<http://ami-global.org>>.

REFERENCES

(Arranged in the order of citation in the same fashion as the case of Footnotes.)

- [1] Sims, P. (2011). “The Montessori mafia”. Wall Street Journal, 5 April 2011.
- [2] Denning, S. (2011). “Is Montessori the origin of Google and Ama-zon?”. Forbes, 2 August 2011.
- [3] Van Mameren, A. (2015). “Exciting developments in Amsterdam’s schools”. New2nl, 16 September 2015.
- [4] Hulshof, C. (2016). “Devil’s advocate. A plea against Prince Ea”. Onderwijsekunde in Utrecht, 13 October 2016.
- [5] Montessori International Community.
<<https://montessori-international.com>>.
- [6] Phuket School Community.
<<https://phuket.school/blog/>>.