

Multiple intelligence and its implications in education

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Abstract

Background: Individuals learn in different ways and likely they express their strengths. Gardner's assertion, if everyone will have the same kind of mind and there would be just one type of intelligence, then we can teach everyone the same thing, in the same way; as well, we will assess them in the same way, and this would be fair. But, as soon as we understand that people have a variety of types of minds, different types of strengths, education, which treats everyone in the

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same way, is unfair education. *Purpose:* of this work is to give a definition and meaning to multiple intelligence and identify its implications in good manners and education. *Method:* will be literature research in the form of a meta-analytical analysis form and comparative including/melting the pedagogical and psychological studies.

Key words: Multiple intelligence, education in early childhood, temper

Introduction

Children benefit in education from multiple ways to engage with content and demonstrate understanding. Every child has his/her own “learning style”. Some move around all the time exploring, others prefer to sit and read, some get lost in construction toys. Gardner described a *novel approach on the conception and assessment of human intelligence. According to Multiple Intelligence theory, each human being can adapt independent forms of information processing, with individuals differing from one- another in the specific intelligence profile they exhibit.* This understanding of different learning styles was early encountered in education. Plato, asserts “...do not use compulsion, but let early education be a kind of entertainment; then you will be better able to discover the natural gift” (Hutchins, 1952). Maria Montessori developed teaching systems based on techniques like MI (Armstrong T., 2009). Multiple intelligence and learning styles are supposed to be important variables that contribute to shaping pupils’ thinking, interests, and priorities and even their choices (Xhomara& Shkëmbi, 2020).

In the history of intellectual development assessment, Alfred Binet in 1904, drafted intelligencetests as an instrument to diagnose pupils “at risk” in elementary education classes. Intelligence could be tested and measured objectively, through Binet test, in a single number, “IQ”. It was Howard Gardner who challenged this belief and tried to expand the understanding of the realm of human potential beyond the limits of the IQ score. **He developed the theory of multiple intelligence, implicating the educational process in pinpointing and developing its kinds.**

The range of human intelligence is assessed through the “fair instruments of intelligence” based on the context.

H. Gardner

Does the theory of multiple intelligence affect education?

In 1979, Gardner, as a researcher at Harvard University, was asked to research human intellectual potential. An impetus that led to the founding of “*Harvard Project Zero*” and the birth of the theory of multiple intelligence (MI). *Three*

research projects were included in PZ, on different age groups. Project Spectrum firstly was adapted to the development of the curriculum in the years of preschool and primary education, offering alternative approaches to education. Based on Gardner's theory of multiple intelligence and David Henry Feldman's theory of non-universal development, children are closely observed, their "strengths" are identified. This creates the basis of the concept of differentiated work, for an individualized educational program. *Preliminary data provided by Project Spectrum show that even 4- and 5-year-old children exhibit distinct profiles of strengths and weaknesses in their abilities. Furthermore, assessments of different intelligences are largely independent and tap abilities other than those measured on standard IQ intelligence tests* (Wexler-Sherman, Gardner, & Feldman, 1988). Gardner identified seven intelligences and along with research he expanded it to nine intelligences; (1) linguistic, (2) musical, (3) logical-mathematical, (4) spatial, (5) bodily-kinaesthetic, (6) interpersonal and (7) intrapersonal, followed by (8) naturalistic intelligence and (9) existential intelligence (Hall, Quinn, & Gollnick, 2020).

Based on the belief that each child exhibits a unique profile due to different abilities, or the spectrum of intelligence, *Project Spectrum* offered alternative curriculum approaches in preschool and elementary education. The curriculum resource guide provided enriched activities in a wide variety of disciplines and its implementation in the classroom (Chen, Isberg, & Krechevsky, 1998).

Positive Effects of MI in Education

Armstrong, in his book "Multiple Intelligences in Classroom" asks parents if their child shows any special interests or abilities that excite him/her at home. If so, does he/she have a chance to develop that talent or skill at school? (Armstrong T., *In Their Own Way: Discovering and Encouraging Your Child's Multiple Intelligences*, 2000). This is where it starts and reinforces the approach of differentiated and individual work in education. Parents usually claim that because of "completely different temperaments" they had to behave differently with their children. Therefore, temperamental traits are easily identified, but in the same way, the outstanding features, and abilities that they display in their intellectual development must be recognized, understood and taken into account in education. Is MI affected by manners and education? Are there any responsible factors in this process? Armstrong argues that the development of intelligence, depends on the three main factors:

- *Biological potential* includes inheriting or genetic factors and brain injuries before, during and after birth.

- *Personal life history*, experience with parents, teachers, peers, friends etc. “wake up” and develop intelligence or on the contrary encumber them or suppress the in an active way.
- *Cultural and historical background*, including time and place of birth and growth, nature, and status of the cultural and historical development in different fields.

An example of the above interaction factors appears obvious in the musical skills of many children registered in the program “Suzuki Talent Education”. Despite some pupils of Suzuki Program may be born with musical genetic gifts modest, they are capable of developing their musical intelligence in a higher level through experiences in the program. (Gardner, 2004)

The concept of *crystallization and parallelism*, brought by David H. Feldman, professor at Tufts University, was further developed in the educational context by Howard Gardner and his colleagues, being identified as two crucial processes in the development of intelligence. Personal life history brings to attention the crystallizing experiences, as “turning points” in the development of talents or skills of the person. *It is as if we can call it unusual fermentation in the early childhood*; despite it can happen at any time during life. The *crystallizing* experiences and the *paralyzing* ones are considered as two influencing processes in the development of intelligence. When Albert Einstein was 4 years old, his father showed him a magnetic compass. Einstein told later that this compass filled him with the desire to understand the mysteries of the universe. This experience activated his geniality and made him go forward to the discoveries that would make him one of the most famous researchers in the scientific thinking of the 20th century. Yehudi Menuhin was almost 4 years old, when his parents sent him to the San Francisco Symphonic Orchestra. The experience fascinated him that much as later he asked his parents for a violine as a birthday present. Menuhin is well-known today as a great violinist of the past century. *The crystallizing experiences are the sparks that light an intelligence and start its development towards maturity*. On the contrary, the paralyzing experiences “close” intelligence. Maybe the irony of a teacher, mocking by the classmates on a drawing during art class, has marked the end of an artistic development. The paralyzing experiences often are filled with shame, fault, fear, fury and other negative emotions that hamper our intelligence to grow and flourish. (Miller, 1981)

How can we understand the prominent intelligences? Are there any ways through which they unconsciously show their intelligence?

There are “a hundred ways” through which children communicate this to us, but how much are we attentive to read these indicators?

One of the best indicators of the pupils’ gifts is observation during spare time in school. In other words, what do they do when none shows them “what to do”. Pupils

of high linguistic skills can be attracted towards books, social children towards games in group and conversations, space pupils towards drawing or building up of a project that exists in their mind, kinesthetic pupils towards physical activities and pupils of naturalist gifts towards animals or aquarium. The observation of pupils in *self-initiated activities*, can show us how they learn in a more effective way.

Taking notes, regular registration of observations of any child, can be rewarded by a long-term plan

- An efficient informal way to identify outstanding intelligence in pupils is to observe how they misbehave in class. The linguistically intelligent pupil will speak out of turn; a learner with spatial intelligence does not listen and daydreams, the learner with bodily kinesthetic will move all the time; someone can bring animals to class and naturally it's showing you about naturalistic intelligence. Metaphorically, through "improper" behavior, they are unconsciously telling us that "This is how I learn". They are specific displays of intelligence, a kind of call, a diagnostic indicator of how children want to be taught.
- School records, however two-dimensional and lifeless they may seem at times, are cumulative data that can provide valuable information about a student's multiple intelligences. If you look at grades over the years, if in mathematics and exact sciences, there are consistently higher grades than in literature and social sciences, this may indicate a tendency towards logical-mathematical intelligence and not linguistic intelligence. Or high grades in art and graphic design can indicate well-developed spatial intelligence, as can excellent performances in physical education, dance, etc. can show bodily kinesthetic intelligence.
- Valuable anecdotal information about a pupil's multiple intelligences are kindergarten teacher reports. She sees the child extensively using all eight intelligences. Consequently, the comments "likes to paint with fingers," "moves gracefully to music and dance," or "creates beautiful structures with blocks" may provide clues to a student's spatial, musical, or bodily-kinesthetic tendencies.
- Parents are the most accurate indicators of a child's multiple intelligences. They can see the child grow under a wide spectrum of circumstances that includes all eight intelligences. Consequently, they should be involved in trying to identify the child's strongest intelligence. They can bring any information that can help in the wider understanding of the child's multiple intelligences. The phrase "six hours late" was used for children who showed little promise in the classroom but were successful outside of school, as leaders, in sales, repair jobs, or as small business entrepreneurs.

It is important to be offered an approximate profile of strengths, cognitive points, learning style and behavior of every child. Beyond describing individual abilities and interests, building a profile suggests how each child's unique tendencies can be enhanced in the environments the child frequents in his or her development.

It should be noted that the decontextualized nature of most testing situations can compromise the value and relevance of test results. (Wexler-Sherman, Gardner, & Feldman, 1988).

One of the applicative features of MI theory is that it can be explained to a group of first-grade children in just five minutes, so that they can then use MI vocabulary to show how they learn in their own way. While many other learning theories contain terms and acronyms that are not easily understood by adults, let alone children (e.g. INFP in the Myers-Briggs typology, which refers to a person "Introverted, Intuitive, Feeling, Judging"), multiple intelligences are linked to concrete indicators with which young people and adults have had their own experience (use of words, numerical algorithm skills, pictures, body manipulations, sensitivity to music, interactions with people, self and nature).

Research in cognitive psychology applied to education has supported the understanding that children benefit from instructional approaches that help them reflect on their learning processes (Marzano & al., 1988). When children engage in this type of metacognitive activity, they are encouraged to choose appropriate problem-solving strategies. They can also serve as self-advocates when placed in new learning environments (Armstrong T., 2009). Several assessment projects, consistent with the underlying philosophy of MI theory, have been initiated, many of them under the leading of Gardner and colleagues at Harvard University's PZ, at the preschool, elementary, junior high, and high school levels (see Gardner 1993b, 2006a).

Spectrum Project as a preschool program piloted at the Eliot Pearson Children School at Tufts University (Medford, Massachusetts), used several assessment instruments that are themselves rich and engaging activities that form an integral part of the *Spectrum* curriculum. They included experiences of creative movement (bodily-kinesthetic/musical); "Dinosaur" board game that include throwing dice, counting moves, and calculating strategies (logical- mathematical); and a story activity that asks pupils to create a miniature three-dimensional world and then tell a story about it (spatial/linguistic). The program also used art portfolios and teacher observations of children engaged in activities in various centers (*e.g., story-time area, construction center, naturalist's corner*).

In addition to looking for "tendencies" in the eight intelligences, the teachers assessed the characteristic "styles" of each pupil, for example, whether they were confident or experimental, playful, or serious, reflective, or impulsive in their way of working, approaching different learning environments. (For more information,

see Gardner, Feldman, & Krechevsky, 1998a, 1998b, 1998c). If we have a free conversation with children, they can be quick and ready to label themselves and their peers as “smart”, arguing with correct answers, fast, good grades; or “notsmart”, explained as the last in assignments, who does not like to read. Adults also define the quantitative dimension of intelligence in the same way, referring to implicit evaluation schemes or test results. But intelligence is much more sophisticated than these two categories.

Part of helping them succeed in school and in life is to show individuals that there are many ways to be intelligent and that intelligence requires diligence and reflection. Over his 50 years, PZ has distributed tangible guidance on how to help individuals rethink the idea of being “smart.” This has implicated the reflection of educators, creating the understanding that people learn in diverse ways. Intelligence is multifaceted, so instead of asking, “How smart is he?”, encourage the reflection, “How smart am I?”

Individuals have a wide range of capacities and there are many ways to be “smart”. Everyone possesses all nine intelligences, but each has unique strengths and weaknesses. Some people have strong verbal and musical intelligence but poor interpersonal intelligence; others may be skilled in spatial cognition and mathematics but have difficulty with bodily-kinesthetic intelligence. Everyone is different; strength in one area does not predict lack of strength in another. Intelligences can also work together. Different tasks and roles usually require more than one type of intelligence, even if one is more clearly defined.

For educators, the lesson here is that individuals learn in diverse ways and express themselves in diverse ways. Gardner’s assertion that, if we all had exactly the same kind of mind and there was only one kind of intelligence, then we could teach everyone the same thing in the same way and as well evaluate them in the same way, which would be right. But once we realize that people have quite various kinds of minds, different kinds of strengths... then education, which treats everyone the same, is actually the most unfair education.

Results and interpretation of MI

Effective teaching embraces the idea that intelligence is developable and depends on our attitudes. Teachers can cultivate and develop intelligence by creating opportunities for pupils to find and solve problems, especially problems that require creative thinking at careful and well-thought-out strategies. Efforts are made on to teach children to think in different ways, to be creative.

Misunderstandings should be avoided regarding outstanding intelligences and how they are treated in the education process. Intelligences are different, but

they are also equal in their importance. No intelligence is more important than the another, they coordinate. Every learning activity relies on various intelligences, not just the most obvious ones. (Armstrong T., 2014).

Encouraging self-knowledge is one of the challenges of education. Making children feel that they are (ex.) Body Smart, even though they are not particularly good at soccer, they are excellent swimmers, is one of the benefits that increases their self-confidence and encourages them to know themselves. Strengths can be strengthened with a little work and weaknesses coherently improved. Intelligences are found in all cultures, countries, and age groups. Regardless of age or background, everyone enjoys the potential of multiple intelligences. It depends on the individual and the educational environment, the development of each of them in the best viable way.

Everyday contexts in education present an infinity of ambiguously evidenced or ill- defined cases for well-thought-out engagement on the part of educators. Opportunities to invest one's intelligence must be discovered, writes Project Zero co-founder David Perkins. And the decision whether to make that investment is not strictly based on ability, just as intelligent behavior itself is not explained by ability alone. Passions, motivations, sensitivities, and values all play a role in intelligence (Perkins, Tishman, Ritchhart, Donis, & Andrade, 2000). To define intelligence as a matter of ability without also considering the other elements that animate it is to fail to consider the human in the overall development of the individual.

Although every child possesses all eight intelligences and can develop all of them to a reasonable level of competence, children begin to show what Gardner calls a "tendency" (or tendency) toward specific intelligences at an early age. By the time children start school, they have developed ways of learning that are more in line with some distinct intelligences than others. We are talking here about a self-taught style that everyone develops in his/her own way, alongside the schemes that education offers systemically. Thus, we are dealing with a unique relationship between the individual and the model that education offers. Armstrong describes this in the chapter "Describing the intelligence of each student". *The concept of learning style defines the approach that an individual can apply in the same way to any content.* In contrast, intelligence is the capacity, with its constituent processes, to adapt to specific content in the world (such as musical sounds or spatial patterns). (Armstrong T., 2009).

Beyond the descriptions of the eight intelligences and their theoretical bases, it should be kept in mind that everyone possesses all intelligences.

MI theory is not a "type related theory" of defining an intelligence in context, it proposes that each person has capacities in all eight intelligences, which work together in ways that are unique to each person. Some people possess exceptionally elevated levels of functioning in all or most of the eight intelligences. The example of

J. W. von Goethe, German poet, statesman, scientist, naturalist, philosopher. *Most of us fall somewhere between these two poles, being advanced in some intelligences, modestly developed in others, and underdeveloped in the rest.* Most people can develop any intelligence to an appropriate level of competence. Although individuals may bemoan their deficiencies in a particular area and consider their problems innate and difficult, Gardner suggests that **everyone can develop all eight intelligences to a sufficiently high level of performance, if encouraged, enriched, and guided at the right manner.** (Armstrong T., 2009)

Conclusions and recommendations

- Theories on multiple intelligences, especially Gardner's, despite criticism regarding its scientific authenticity, seem to be constructive and especially valuable in the process of education and finding the 'right path in life'.
- Multiple intelligences can be detected by previously built and validated instruments/tests or with others to be built in the future.
- The main indicator for the specifics of intelligence in an individual is the observational evidence of parents and primary and secondary educators.
- Early detection of specific intelligence at an individual can significantly improve the course of his/her life cycle in professional and qualitative terms.
- Early detection of specific intelligence in an individual can significantly affect the increase of his self-confidence and consequently the maximization of his potentials and performance.
- Conceptually in this study, aptitude, gift, talent and intelligence seem to be approximate notions.
- The in-depth study of this theory in different contexts and cultures would probably constitute a revolution in the field of education and personality psychology.
- Mass application of this theory in kindergartens and primary school institutions in the form of identifying trends would be a constructive process as a whole.

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