

Multiple Intelligences As The Revolution For The Concept Of Intelligence

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Abstract

People, parents, and teachers in an educational institution often conceive that intelligence can only be seen through academic scores and formal test results such as getting the high score or being the highest student in the classroom. This conception is out of date and superficial as the concept of intelligence is broad and has undergone some changes due to the appearance of multiple intelligences theory proposed by a Psychologist from Harvard University. Intelligence is not limited to formal test only; it is multidimensional and the process of discovering one's competence. Multiple intelligences is the theory of intelligence which was pioneered by a psychologist from Harvard University who suggests that everyone is intelligent and has tendency to possess an intelligence among eight dimensions of intelligences. The eight dimensions of intelligences are linguistic intelligence, logical-mathematical intelligence, visual-spatial intelligence, bodily-kinesthetic intelligence, musical intelligence, interpersonal intelligence, intrapersonal intelligence, naturalistic intelligence, and Existential - spiritual intelligence.

Keywords: Intelligence, multiple intelligences, revolution, theory of intelligence, emotional intelligence, and spiritual intelligence.

1. Introduction

Every child born to this world brings the potencies which are inherited from his/her heredity; one of the potencies h/she brings is intelligence. People and educational world (including parents and teacher) have long been conceiving that the intelligent student is the one who gets the high score (100, 90, and so forth), who is the highest or at least being the three highest student in the classroom, and who is smart in the subjects of exact sciences such as mathematic, chemistry, physics and the likes. However, the concept of intelligence is broad and not limited to the score and number only. As suggested by Howard Gardner in Munif Chatib and Alamsyah, intelligence cannot be assessed and measured through the score and number [1]. In addition, Munif Chatib also proposed in *Orangtuanya Manusia* that the children have intelligence as boundless as the sea, which has many potencies within it [2]. There are many cases that can prove that person whose IQ score is high and whose achievement in certain subject is high or who is the highest student in the classroom is unable to interact with others, understand him/herself and others, and manage his/her own psychological condition. Educational world tends to be academic achievement oriented rather than developing students' intelligence [3]. It makes teachers misconceive that the smart or intelligent student is the one who has good academic achievement is student who gets the high score. This misconception gives influence on teachers', parents' and people's behavior toward student.

They often utter the bad words which can fatally inflict on student especially his/her psychological condition. For example, "you are stupid, you can not do this since you always get the low score, your answer is wrong and so forth. In Fact, Howard Gardner says that, there is no stupid person, every person is intelligent and smart, but in the different dimension of intelligences. Some are intelligent in language; others in sport, mathematic, etc.

For long, the educational institutions in this country have actually destroyed students' potencies as most of those institutions are like robotic education, starting from instructional process and school environment up to grading system [4]. For instance, the achievement of self-neatness is only measured through the grade in report card; teachers' strategy in teaching does not accord with students' learning style and teachers tend to blame their students verbally. Theoretically, school as the educational institution is supposed to help students develop their potency, not the other way around. Teachers are willingly supposed to understand their students' learning style since each of them has the different learning style. Parents and teachers have to put in their mind that every child is intelligent, like a star whose ability is as boundless as the sea. The fact that every child is intelligent is indisputable. Intelligence is the gift from the God Almighty to humankind. Thus, there is no child who is unilligent and there are none of them that do not have the intelligence specification. A research from Munif Chatib shows that islamic boarding schools are successful in nurturing their students' linguistic intelligence because they have been set up to gain mastery over the language [5]. Parents and teachers also have to realize that every child is a star, so h/she can not be compared to other

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children as each of them has the different intelligence and ability.

A child has ability as boundless as the sea which means that the ability that a child possesses is really wide. Therefore, parents and teachers are required to be able to discover that ability and nurture it. However, in reality, parents, teachers and educational systems reduce and narrow it down that the intelligence which was as boundless as the sea is now as narrow as the ditch [6].

In this recent time, the concept of intelligence which previously was only in the form of scores and numbers now changes into many dimensions and domains of intelligences. This article attempts to explore what multiple intelligences is, what the dimensions of them are and how the revolution and the change of the intelligent concept is.

2. Discussion

2.1. Definition of Multiple Intelligence

The theories of intelligence appear as many as psychologists who propose them with the different perspective. Each theory is different from others as each psychologist also has different perspective. Spearman who is well-known for his Spearman Theory says that there are two factors of intelligence, that are general factor (G factor) and special factor (S factor). General factor is the basis for human behaviour which is hereditary or genetic, whereas special factor functions in specific behaviour which is acquired by learning. Cyrill Burt adds another factor known as collective factor (C factor, common factors). It is the collection of some special factors, for example, intelligence in art. Thurstone, an expert in psychometrics, also proposes the same theory as Spearman and Burt about the S and C factor, but he disagrees with the theory of G factor. In his view, an individual has a number of S factors which are classified into seven C factors namely: Verbal Comprehension (V), an ability to understand something verbally uttered (using language), Word Fluency (W), fluency and accuracy to express one's mind through words, Number Ability (N), an ability to understand and solve mathematical problems, Spatial Ability (S), an ability to understand space, Memory (M), an ability to memorize things, Perceptual Ability (P), an ability to observe and interpret the things observed, and Reasoning (R), an ability to think logically. Another notion states that intelligence is an ability to solve problems and to create creativity. The intelligence in this sense is derived from two things, namely: enablement which is caused by physical action and enablement which is caused by non-physical factor. Physical action is produced by kinetic movement of body, such as playing musical instrument, forming pattern and avoid opponents when kicking football. On the other hand, the action which comes from non-physical factor is a formalized thought in the form of habitual ability to work with words, understand the number calculation in mathematic, feel comfort and happiness when interacting personally. Edward Thorndike in Munif

Chatib says that intelligence is one's ability to respond correctly [7].

The definition of intelligence as previously described has been redefined, or the concept has undergone some changes in the appearance of new theory about intelligence as proposed by Harvard University Psychologist Howard Gardner with his Multiple Intelligences theory. In his theory, Howard Gardner disputes the concept of intelligence as it has long been conceived (only measured with the static scores and numbers) by stating that this concept is too superficial. Therefore, he proposes in his book entitled "frames of main" the theory of intelligence that he called multiple intelligences [8]. The theory that appeared in 1983 was as the critique for the concept of intelligence proposed by the previous psychologists who claimed that the intelligence can only be measured through intelligent test (IQ). For example, intelligence test (IQ) from Alfred Binet that only measures two superficial domains of one's intelligence i.e verbal and mathematical and defines the intelligence in the obtained score of IQ. Multiple intelligences is the theory of intelligence which is proposed by Howard Gardner who states that every child is intelligent and has intelligence tendency among the eight dimension of intelligences i.e linguistic intelligence, logical-mathematical intelligence, visual-spatial intelligence, musical intelligence, kinesthetic intelligence, interpersonal intelligence, intrapersonal intelligence, and naturalistic intelligence [9].

2.2. Revolution for the concept of intelligence

The concept of intelligence which was previously seen only from scores has now been redefined and undergone changes into a very broad one. The first psychologist who claims that the intelligence is not measured through score was Howard Gardner. The intelligent which a person has always develops and is influenced by his/her habit. Therefore, the concept of intelligent shifts from score to habit or behavior. This theory is supported by other non-numeric based theory of intelligence, such as emotional and spiritual intelligence from Daniel Goldman and Palu Stoiltz with his Adversity Quotient: one's intelligence can be seen through his/her ability to solve the problems that h/she faces and also the latest theory of intelligence proposed by a husband and wife, Ian Marshall and Danah Zohar i.e spiritual quotient (SQ) [10].

Emotional intelligence pioneered by Daniel Goleman claims that one's success is highly determined by some factors other than intelligence test score (IQ score); one of those factors is emotional intelligence. Emotional intelligence is the ability that a person has to understand him/herself and others, do self-motivation, and interact with others interpersonally [11]. Meanwhile, spiritual intelligence (SQ) is the intelligence which perceives that the successful person is the one who do useful deeds for others and apply high moral values in his/her behavior [12]. Both emotional and spiritual intelligence are leaving the

notion of intelligence based on scores and numbers and supporting the theory of multiple intelligences.

The change of the concept of intelligence can be seen in the following aspects. The intelligence someone possesses is not limited to the indicators in the formal test as some researches show that the intelligence is dynamic. The test to measure intelligence only assesses one's intelligence for the period of time when h/she takes the test, not for the long term, for another month or ten years to go for instances. For example, IQ test proposed by Alfred Binet calculates the IQ score through dividing the mental and chronological age then the result is multiplied by 100. If the mental age and chronological age are similar then the IQ score will be 100. The obtained score is consulted to the list of the score from IQ test takers. This calculation method is disputed by many experts. If there are a million children taking the test, the test will yield the IQ scores which are classified in the range of unintelligent child, intelligent child, and genius child. In addition, the intelligence is also multidimensional which means that one's intelligence can be seen from many dimensions, like logical intelligence, linguistic intelligence etc. Gardner gives the term for these dimensions as 'multiple' (plural or compound). The word "multiplied" is employed to suggest that the intelligence is possible to develop. Moreover, the intelligence is the process of discovering ability. It means that the intelligence gives more emphasis on the process of achieving the best final result. Multiple intelligences propose the methods of the process to discover one's ability in which everyone certainly has the tendency to possess certain intelligence. The tendency must be found through intelligence discovery. If the weakness is found in the certain kind of intelligence, then the weakness must be kept hidden away. Multiple intelligences suggests that everyone promote the good potencies of his/her children and bury down their weaknesses. In discovering their ability, every children must be helped by their parents, teachers, schools, and implemented educational systems in the given country [13].

Parents are required to be able to discover the intelligence of their children and not to expose their negative sides. Instead, they are required to always see on the positive sides and reinforce them. Similarly, teachers are required to recognize their students' learning style in order that the learning process will be running well in accordance with students' learning style. Educational system is also supposed to take part in discovering students' intelligence in school through its policy about evaluation and curriculum that can develop students' potency instead of restraining them.

Based on the description above, it can be concluded that the definition and concept of intelligence which was previously only in the form of score and number has now undergone changes (revolution) into a very broad one.

2.3. Dimensions of Multiple Intelligences

Multiple intelligences can be classified into eight dimensions as follows :

2.3.1 Linguistic intelligence

Language competence is already seen since the infant. During the infant period, a child communicated with their surrounding through crying. As their age grew, they began babbling (producing meaningless sound explosively), then followed by gesture, uttering one word, two words, and full sentences [14]. If parents always interact with their children during this period through verbal communication, they will nurture the appearance of the linguistic intelligence within them. Despite being unable to verbally communicate, an infant understands and comprehends what others say to him/her. Therefore, parents need to stimulate the development of linguistic intelligence in the children since they were an infant.

Language/linguistics culturally represents the social entity of society. Most of regional languages in Indonesia have their own dialect and intonation which is different from one another. Every culture offers the different extent of ability to use the language. Starting from Bahasa Indonesia, Chinese, Arabic, Japanese, English into scientific language which needs special ability to use it both correctly and accurately. Related to scientific language as previously mentioned, not all people have good ability to express their idea and thought in the good manner and pattern. Those who are able to use words and work with them in orating or writing can be considered to have basic requirement of linguistic intelligence.

Linguistic intelligence can be defined as the ability to think in the form of words and to use language to express things and appreciate the complex meaning [15]. This intelligence encompasses the ability to manipulate grammatical structure, phonology (sound of language), semantics (meaning of language), pragmatic dimension (practical use of language). People who have linguistic intelligence possess the ability to use words effectively, both oral such as a narrator, orator, or politician and written such as a poet, playwright, editor, journalist. The use of language in this sense encompasses four aspects, first rhetoric (the use of language to persuade others), second mnemonic or memorizing (the use of language to memorize information), third explanation (the use of language to give information) and fourth metalanguage (the use of language to discuss the language itself). Those who are intelligent in language will love reading, telling story, writing poetry or story, learning foreign languages, possessing large vocabulary store, knowing in spelling, writing letters or email, conveying ideas, remembering names or facts, doing word play like crossword puzzles, word guessing, poetry etc, researching and reading the ideas that interest them [16].

Students who have linguistic intelligence will get positive values and benefits in their life. The followings are some advantages of linguistic intelligence: students will be skilful in oral and written communication, through their

words, they can inspire others students will get good achievement in or outside school, through the books they read, students can have an adventurous journey visiting wonderful places [17].

2.3.2 Logical-mathematical intelligence

This intelligence encompasses the awareness to the form and pattern, proposition and theorem (if, so, cause-effect), logical function, and other abstractions. The process used in logical-mathematical intelligence is categorization, classification, deduction, generalisation, calculation and hypothetical testing process [18]. People who have this intelligence are able to use numbers correctly and do good reasoning. They love calculating, learning science, solving puzzles and mysteries, remembering numbers, doing mathematical tests, playing strategic games such as chess and logical puzzle, guessing number, discovering the working process of computer, wondering and observing surroundings, places, events and things, starting from numbers, nature, and human behavior [19]. The profession of the people of this intelligence is a mathematician, tax accountant, statistician, scientist, computer programmer, logician [20].

The advantage that the students of this intelligence will get is that they will be able to improve their mathematical competence, scientific, dan skill in using computer. They will understand cause effect relationship that exists in this life. All of them will help students solve problems in their life [21]. Children of this intelligence is likely to be "beloved child" for both parents and teachers because they will usually get high score in mathematic. This phenomenon occurs because the parents and teachers still hold the limited concept of intelligence in their mind.

2.4. Visual-spatial intelligence

This intelligence is the awareness to the colour, line, shape, space and relationship among those things and encompasses the ability to imagine, present the ideas visually or spatially, and orient oneself in spatial matrix. People who possess this intelligence have the good ability to perceive spatial-visual world and transform this perception [22]. They love drawing their ideas, making sketches to solve problems, remembering face instead of name, thinking visually, visualizing objects in their mind, working with things like papers, paints, and markers, watching movies or videos, reading map, figure, table, and chart, doodling, drawing pictures in a very detail and realistic, remembering information in the form of pictures and creating models and three-dimension images [23].

The profession of the people of this intelligence is a hunter, scout, guide, interior decorator, architect, artist, or inovator [24]. Meanwhile, the advantage that the students of this intelligence will get is that it will help them make a wide range of artistic works, solve problems and produce the best idea. It can also help them design and build from the mockup into the building [25].

Most parents and teachers do not recognize that the children has this intelligence, so it does not develop well. Therefore, this intelligence should be nurtured since the children were an infant.

2.5. Bodily-kinaesthetic intelligence

This intelligence encompasses specific physical abilities like coordination, balance, strength, flexibility, and speed. It also includes the ability to receive stimulation (proprioceptive) and things related to touch (tactile & haptic). People who possess this intelligence have a good competence in using all their body to express idea and feeling and their hands to create or change something [26]. They love playing sport, making body movement while thinking or remembering something, imitating others' gesture and expression, learning physical skills easily, acting, dancing, making crafts and mockups, having sensitive senses, dan expressing their emotion and feeling through physical movement [27]

The profession of people of this intelligence is an actor, pantomimic player, athlete, dancer, craftsman, sculptor, mechanics, surgeon [28]. The advantage the students of this intelligence will get is that it will train their imagination, perfect the knowledge of animal world, train their motoric muscular movement and control their movement, develop their perception about the circumstance and things around them [29].

People of this intelligence is frequently misconceived as an unintelligent one although they have good non-academic achievement whereas their academic achievement is the standard one.

2.5. Musical intelligence

This intelligence encompasses the awareness to the rhythm, pitch or melody, timbre. People of this intelligence is able to handle musical notes through perceiving, distinguishing, arranging and expressing them. The profession of people of this intelligence is a music critic, composer, singer etc [30]. Students of this intelligence love singing, listening to music, playing musical instruments, reading music, remembering melody or tone, recognizing many different songs, distinguishing different musical instruments that are played in choir, humming or singing while thinking, learning or doing other activities, catching sounds from surroundings, making music with his body part such as clapping, flicking, or stomping and creating songs and lyrics. The advantage the students of this intelligence will get is that it will speed the brain to be more active and creative because of listening, memorizing and guessing song title: train their memory; enable them to determine and make a decision; make them learn about carefulness, self-confidence and speed in thought [31].

People of this intelligence is not misconceived as unintelligent one, in some cases most people look down on them because of this intelligence.

2.6. *Interpersonal intelligence*

We often see a person who is good in getting along with others, have many parents, adapt in new surrounding easily, good in persuading others. Believe it or not, this person can be considered as an intelligent one.

People who possess this intelligence will be able to recognize and distinguish others' mood, intention, motivation and feeling. This intelligence encompasses the awareness to the facial expression, voice, gesture. It is also the ability to recognize different interpersonal cues and respond to the cues effectively with the certain pragmatic act. For example, persuading others to do something [32].

Students of the interpersonal intelligence love mingling with others, offering help in the time of need, having group activities and warm conversation, reconciling others in conflict, showing confidence when interacting with a new person, arranging their and their friends schedule for their activities, recognizing what others feel, encouraging others in a group work, preferring work together to on their own, convincing others about their idea easily, helping others sincerely..Some advantages that the students of this intelligence can get are as follows [33]: help them able to get along with anyone, help them solve the conflict, help them organize and lead their friend, encourage them to cooperatively learn or share their thought, enable them to encourage others and persuade them to do something, enable them to help others develop their potency into the better change, enable them to recognize others' gesture.

2.7. *Intrapersonal intelligence*

Intrapersonal intelligence encompasses the ability to understand oneself both strength and weakness, mood, intention, motivation, temperament, and will. It is also the ability to do self-discipline, recognize and value oneself. People of this intelligence will be able to understand oneself and act in accordance with that understanding [34].

Students of this intelligence love having self-doing activities, setting their goal and achieving it by themselves, valuing and believing in what they deem right despite being unpopular, paying little heed to what others say, thinking about what they deem right, recognizing their strength and weakness, writing diary, writing their own ideas, experiences, memories, feelings and their life journeys, realizing of who they are, thinking about their future, knowing what they will be in the future, and showing interest in religious, psychological and philosophical problems. The advantage of this intelligence for the students is that they are able to understand themselves; make the best choice for their live; avoid themselves being influenced by others as they do not really care what they say; prevent themselves from doing things that will inhibit their goal; become self-reliance in thought, action and decision; have the clear goal and dream and try to make them true; understand their feeling and express it in the good way; learn from mistake, failure, and success that it can encourage them to maximally use and develop the

whole abilities they have; know what they can give for the sake of others' welfare and how to give it [35].

Most parents and teachers do not recognize this intelligence in their children whereas it needs to be appreciated and developed.

2.8. *Naturalistic intelligence*

This intelligence encompasses the awareness to the natural phenomena such cloud and mountain formation. It is also the ability to recognize inanimate thing (for those who live in the urban area) such as car, sneaker, and CD cover. People of this intelligence will be able to recognize and categorize species like flora and fauna around them[36]. This intelligence is shown through interest in the animal and plant world and students of this intelligence love planting and gardening, caring for environment, going to park, zoo, sea and mountain, having camping and outbound activities, having pets at home, making design from leaves, stones, flowers, seeds and shells, cooking in their own garden, adapting with the nature easily, remembering characteristics and names of the animals, plants, and natural scenery, asking about people, places, and everything they see in their surroundings, and being touched when seeing environmental problems and wishing to fix them. The advantage of this intelligence for the students is that they are able to interact and survive in the wild nature and understand how to preserve it; have the awareness in observing their surrounding; understand the importance of live environment; learn much about nature and value it; value others as the existence of the universe; become aware of their existence and role for this universe [37].

This intelligence enables a person to have high awareness of his/her surrounding, that h/she will not do anything that can harm the environment, such as trashing, illegal logging and the likes.

2.9. *Existential and spiritual intelligence*

This intelligence is considered to be the most essential intelligence among other intelligences such as intellectual, emotional and social intelligence [38]. The word spiritual is derived from spirit which means "soul". This word has the same root as the Latin word "spiritus" which means "breath". Spirit or soul is the life energy that enables human to live, breathe, and move. Spiritual also means everything that exists beyond the physical world including thought, feeling, and character which is known as nature.

Spiritual intelligence is the ability to fully recognize and understand oneself as the part of both spiritual and universal existence.

Spiritual intelligence in this article is defined as life capacity of humankind which is derived from his/her heart and inspired in the form of nature to be developed and nurtured in order to solve many problems in this life. This definition encompasses:

- a) The awareness of one's nature and existence that enables him/her to hold the broad worldview
- b) The possession of tolerance toward others that enables him/her to give acceptance toward others' existence
- c) The truth that accord with the knowledge and its object
- d) The meaningfulness that considers every meaningful things can add positive value to new ideas
- e) The self-submission to God the Almighty
- f) The tranquility that is felt in one's heart and soul and give him/her comfort, peace, and safety [39]

Spiritual intelligence is proposed after the eight intelligences as previously described prove that the intelligence always develops. Therefore, there is possibility that these nine multiple intelligences can be added some more.

3. Conclusion

The concept of intelligence has undergone changes in which it is not limited to the formal test only, rather it is multimendimensional and the process of discovering one's ability. Multiple intelligence is theory of intelligence which was pioneered by Harvard University psychologist who states that everyone is intelligent and have intelligence tendency among eight dimension of intelligences.

There are eight dimensions of multiple intelligences which are linguistic intelligence, logical-mathematical, visual-spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, naturalistic and existential – spiritual intelligence.

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