Study on the Multiple Intelligences

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ABSTRACT

Many educators have had the experience of not being able to reach some students until presenting the information in a completely different way or providing new options for student expression. Perhaps it was a student who struggled with writing until the teacher provided the option to create a graphic story, which blossomed into a beautiful and complex narrative. Or maybe it was a student who just couldn't seem to grasp fractions, until he created them by separating oranges into slices. Because of these kinds of experiences, the theory of multiple intelligences resonates with many educators. It supports what we all know to be true: A one-size-fits-all approach to education will invariably leave some students behind. However, the theory is also often misunderstood, which can lead to it being used interchangeably with *learning styles* or applying it in ways that can limit student potential. While the theory of multiple intelligences is a powerful way to think about learning, it's also important to understand the research that supports it.

Keywords: Theory, MI, Scientific Process

INTRODUCTION:

The Definition of Multiple Intelligences

In 1983, Gardner defined an intelligence as "the ability to solve problems or to create products that are valued within one or more cultural settings" (p. 11) in his book: Frames of Mind: The Theory of Multiple Intelligences. Afterwards, in 1999, he advanced the concept of intelligence as "a biological and psychological potential to process information that can be activated in a cultural setting to solve problems or to create valuable products in a culture" (p. 33-34) in his book: Intelligence Reframed: Multiple Intelligences for the 21st Century. Recently, he suggested that intelligences are neural potentials rather than the things that could be seen or counted, and the activation of intelligences relies on the values of a specific culture, the chances given in that culture, and the choices made by individuals or the important people around them. Beyond the traditional idea of intelligence as the single faculty that people are either clever or stupid, he embraced more human capacities ignored in the past (Gardner, 1999). Namely, instead of a quotient produced from an IQ test in the past, intelligence is viewed as the capacity for solving problems and fashioning products in the real-life environment (Armstrong, 2000; Stanford, 2003). To examine the existence of the candidate intelligence, Gardner set up eight criteria by considering diverse disciplines' roots, including biological sciences, logical analysis, developmental psychology, traditional psychology and tried hard to ascertain the relevant scientific proof. The following were the sources of these criteria (Armstrong, 2000):

1. The potential of isolation by brain damage (emanated from biological sciences); 2. An evolutionary history and evolutionary plausibility (emanated from biological sciences); 3. An identifiable core operation or set of operations (emanated from logical analysis); 9 4. Susceptibility to encoding in a symbol system (emanated from logical analysis); 5. A distinct development history along with a definable set of expert "end-state" performances (emanated from developmental psychology); 6. The existence of idiot savants, prodigies, and other exceptional people (emanated from developmental psychology); 7. Support from experimental psychological tasks (emanated from traditional psychology); 8. Support from psychometric findings (emanated from traditional psychology). The eight multiple intelligences contain particular characteristics and serve to certain professions.

These eight intelligences are described as below:

(1) Verbal/linguistic intelligence It refers to the production of language, abstract reasoning, symbolic thinking, conceptual patterning, reading, and writing (Gardner, 1997). People with higher verbal intelligence tend to be good at teaching, journalism, writing, law, and translation (Nolen, 2003).

(2) Logical/mathematical intelligence It stands for the capacity to observe patterns, work with abstract symbols (e.g., numbers, geometric shapes), and detect relationships or spot

connections between separate and different pieces of information (Gardner, 1997). People with higher logical intelligence are able to follow a serial of reasoning and calculate very quickly (Nolen, 2003).
(3) Visual/spatial intelligence It means the ability to visualize objects from distinct perspectives and angles. People with higher visual and spatial intelligence excel in visual arts, navigation, mapmaking, architecture, as well as games requiring (Gardner, 1997).
(4) Bodily/kinesthetic intelligence It is the ability to use the body to express emotion, to play a game, and to create a new product (Gardner, 1997). This intelligence enables people to excel in the professions such as dancing, athletics, sculpture, carpentry, plumbing, and mimics (Nolen, 2003).
(5) Musical/rhythmic intelligence It represents the following capacities: the use and appreciation of rhythm, pitch, patterns and sensitivity to sounds from the environment and musical instruments (Gardner, 1997). Those with musical intelligence are often found in professions such as violinists and composers (Nolen, 2003).
(6) Interpersonal intelligence It suggests the ability to cooperate with others in a group, and also the ability to communicate verbally and nonverbally with other people (Gardner, 1997). People with higher interpersonal intelligences are often found in professions such as teaching, politics, salesmen, therapists, and religious leaders (Nolen, 2003).
(7) Intrapersonal intelligence It represents the internal aspects of the self, such as access to one's own strengths, range of emotional responses, thinking processes, self-reflection, and a sense of intuition about spiritual realities (Gardner, 1997). People with stronger intrapersonal intelligence are often autobiographers, the clergy, self-managers as well as those who perceive their inner world profoundly (Feng, 2000).
(8). Naturalistic intelligence It shows the ability to discern patterns in nature and sort objects, sensitivity to other features of the natural world, and an understanding of different species (Gardner, 1997). Biologists and evolutionary theorists usually have higher naturalist intelligence 11 (Nolen, 2003).

The Principal Claims of MI Theory

Some important claims underlying MI theory are discussed as follows:
(1) Each person has all eight intelligences. MI theory, a cognitive functioning theory, proposes that each person has capacities in the eight intelligences to some degree and displays the eight intelligences uniquely (Armstrong, 2000). In other words, each person has a unique combination of these eight intelligences that trigger the individual difference (Gardner, 1999).
(2) Most people can develop each intelligence to an adequate level of competency. Gardner (1999) pointed out that almost everyone possesses the capacity to develop these eight intelligences well if provided adequate encouragement, enrichment, as well as instruction. That is to say, people can change and grow the multiple intelligences in response to their biological and environmental experiences (Krechevsky & Seidel, 1998).
(3) Intelligences usually interact in complex ways. Gardner (1999) believed that no intelligence exists in isolation from other intelligences in life. People will develop some of the intelligences in a complicated way simultaneously when stimulated by multi-sensory activities (Poole, 2000). This idea can also be proved by psychological studies claiming that although human brain is identified to have distinct functions at different areas in the two hemispheres, both hemispheres work together in a complementary manner to support holistic and integrated activities (Jenson, 1998). Take cooking for instance, one may adopt his verbal/linguistic intelligence to read the recipe, logical/mathematical intelligence to divide the recipe in half, interpersonal intelligence to develop a menu to meet the 12 needs of his or her family, and intrapersonal intelligence to placate one's own appetite as well (Armstrong, 2000).
(4) There are a number of ways to be intelligent within each category. According to Gardner (1999), there is no fixed trait to determine how intelligent a person is in a particular field. People show their talents within intelligences and between intelligences in a variety of ways

(Armstrong, 2000). For instance, a person with stronger linguistic intelligence may read a book but can't tell a story well.

The Difference Between Multiple Intelligences and Learning Styles

One common misconception about multiple intelligences is that it means the same thing as learning styles. Instead, multiple intelligences represents different intellectual abilities. Learning styles, according to Howard Gardner, are the ways in which an individual approaches a range of tasks. They have been categorized in a number of different ways -- visual, auditory, and kinesthetic, impulsive and reflective, right brain and left brain, etc. Gardner argues that the idea of learning styles does not contain clear criteria for how one would define a learning style, where the style comes, and how it can be recognized and assessed. He phrases the idea of learning styles as "a hypothesis of how an individual approaches a range of materials."

Everyone has all eight types of the intelligences listed above at varying levels of aptitude -- perhaps even more that are still undiscovered -- and all learning experiences do not have to relate to a person's strongest area of intelligence. For example, if someone is skilled at learning new languages, it doesn't necessarily mean that they prefer to learn through lectures. Someone with high visual-spatial intelligence, such as a skilled painter, may still benefit from using rhymes to remember information. Learning is fluid and complex, and it's important to avoid labeling students as one type of learner. As Gardner states, "When one has a thorough understanding of a topic, one can typically think of it in several ways."

What Multiple Intelligences Theory Can Teach Us

While additional research is still needed to determine the best measures for assessing and supporting a range of intelligences in schools, the theory has provided opportunities to broaden definitions of intelligence. As an educator, it is useful to think about the different ways that information can be presented. However, it is critical to not classify students as being specific types of learners nor as having an innate or fixed type of intelligence.

Practices Supported by Research

Having an understanding of different teaching approaches from which we all can learn, as well as a toolbox with a variety of ways to present content to students, is valuable for increasing the accessibility of learning experiences for all students. To develop this toolbox, it is especially important to gather ongoing information about student strengths and challenges as well as their developing interests and activities they dislike. Providing different contexts for students and engaging a variety of their senses -- for example, learning about fractions through musical notes, flower petals, and poetic meter -- *is* supported by research. Specifically:

- Providing students with multiple ways to access content improves learning (Hattie, 2011).
- Providing students with multiple ways to demonstrate knowledge and skills increases engagement and learning, and provides teachers with more accurate understanding of students' knowledge and skills (Darling-Hammond, 2010).
- Instruction should be informed as much as possible by detailed knowledge about students' specific strengths, needs, and areas for growth (Tomlinson, 2014).

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