

Eight types of intelligence **by Mélanie Brillant and Mélanie Poirier**

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Project summary

Our project consists in explaining and demonstrating the value of the multiple intelligence theory. We will also discuss its application in education from a teaching and evaluation standpoint.

Project report

Is there a teaching philosophy that would better satisfy the specific needs of each student? The multiple intelligence (MI) theory developed by Howard Gardner, Harvard University researcher, could offer an answer to this question. As students, we were concerned with this issue and the MI theory seemed to be an interesting avenue to explore. The aim of our project is therefore to share the results of our research on this new theory, as well as its applications in the field of education.

The MI theory and its origins

A number of scientists have been interested in the different components of intelligence and how it works. They have repeatedly tried to define and measure intelligence.

Webster's Third New International Dictionary defines intelligence as the faculty of understanding; capacity to know or apprehend; intellect, reason. During the mid-1970s, Gardner, who disagreed with existing theories at the time, proposed that several different types of intelligence existed. While working on Project Zero at Harvard University, he developed his MI theory and published a work on the subject entitled *Frames of Mind* in 1983.

Gardner's MI theory proposes that there is not one single intelligence, but rather eight:

- Verbal and linguistic: Uses written or spoken language, and understands the significance of words and language.
- Logical/mathematical: Uses numbers, models and logical relations.
- Spatial: Uses colours, lines, shapes, figures and space; visualizes and graphically represents concepts; orients himself or herself.

- Bodily-kinesthetic: Uses the body to express himself or herself and the hands to create, manipulate and transform objects.
- Musical: Produces and appreciates musical pitch, rhythm and tone.
- Interpersonal: Interacts with others by being aware of their moods, intentions, motives and feelings.
- Intrapersonal: Recognizes and understands his or her own feelings and emotions.
- Naturalistic (added in 1995): Classifies flora and fauna and understands the relationships that exist in nature.

According to this theory, the types of intelligence are relatively independent and include several skills. Moreover, each one corresponds to a neurological system and is therefore controlled by a specific region of the brain. This explains why not all the abilities of people who have suffered brain lesions are affected. In addition, different types of intelligence develop at different levels. This can be seen in people with autism, whose interpersonal intelligence is not very well developed, but who may have exceptional musical talents. In addition to being based on individual observations, the MI theory has its origins in the evolution of human beings throughout history as far as all eight types of intelligence are concerned. Prehistoric cave paintings are an example of the development of spatial intelligence.

Educational applications

In traditional schools, teaching and evaluation favour mostly verbal and linguistic and logical/mathematical intelligence, at the expense of other types of intelligence. Schools that apply the MI theory favour the development of all types of intelligence in all subjects. Each concept learned in class is transformed from one type of intelligence to another, and therefore taught eight different ways. As a result, students have more opportunities to understand the subject and remember it. For example, the following approaches could be taken to teach students the concept of Boyle's Law (chemistry):

- Ask students to discuss the relationship between pressure and volume (interpersonal).
- Give students a verbal definition of Boyle's Law (verbal and linguistic).
- Have students take a balloon filled with air, decrease its volume by crushing it between their hands and observe what happens to the pressure (bodily-kinesthetic and naturalistic).
- Show students drawings or graphs illustrating the concept of Boyle's Law (spatial).
- Associate the verbal definition of Boyle's Law with a rhyme and recite it with the students (musical).
- Ask students to think about times in their lives when they felt pressure (intrapersonal).

- Prepare mathematical problems in which students have to use Boyle's Law (logical/mathematical).

Students in MI schools are continually evaluated on projects and work involving all eight types of intelligence. In a traditional written exam, students are unfairly evaluated, since they are isolated from their normal learning environment. In addition, these exams do not fully evaluate students' understanding because students are limited to expressing themselves using verbal and linguistic or logical/mathematical intelligence. The type of evaluation used in MI schools enables students to demonstrate their full potential.

Our research helped us better understand the MI theory and its foundations. We were also able to appreciate the many advantages of this theory in existing education systems (e.g. the Key School in Indianapolis, Indiana [USA]). According to the observations of many researchers and teachers, applying the MI theory helps students develop a greater sense of self-worth, promotes a better understanding of the learning process and favours diversity, which satisfies students' individual needs. It would be interesting to examine the long-term effects of this type of education on students. Would they become more resourceful, open-minded and self-confident?