



Learning Theories: Multiple Intelligences

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Overview

The Theory of Multiple Intelligences (Gardner, 1985) hypothesized that all human beings, barring any physical disabilities, have seven types of intelligences: logical-mathematical, linguistic, musical, spatial, bodily-kinesthetic, interpersonal, and intrapersonal. By becoming aware of these separate intelligences, Gardner & Hatch (1989) believed that discovering distinctions within people could have both educational and eventually vocational implications. Below is a more in-depth description of the seven original proposed intelligences along with naturalistic intelligence (added by Gardner in his 1999 book *Intelligence Reframed*) and potential career pairings for the respective intellectual strengths.

Intelligence	End-States	Core Components
Logical-Mathematical	Scientist, Mathematician	Capacity to discern logical or numerical patterns; ability to handle long chains of reasoning
Linguistic	Poet, Journalist	Sensitivity to sounds, rhythms and meaning of words; sensitivity to language functions
Musical	Composer, Violinist	Abilities to produce and appreciate rhythm, pitch and timbre; appreciation musical expressiveness
Spatial	Navigator, Sculptor	Capacity to perceive the visual-spatial world accurately and to transform the spatial world
Bodily-kinesthetic	Dancer, Athlete	Abilities to control one's body movements and to handle objects skillfully
Interpersonal	Therapist, Salesman	Capacities to discern and respond appropriately to the moods, temperaments, and desires of others
Intrapersonal	Person with detailed, accurate self-knowledge	Access to and ability to discriminate one's own feelings to guide behavior; knowledge of one's own strengths, weaknesses, desires and intelligences

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Naturalistic	Zoologist, Botanist	Appreciation for wildlife and the outdoors; adept at categorizing things in the natural world
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Implications for the Classroom

Multiple Intelligences and Learning Styles

One myth about multiple intelligences is that they are synonymous to separate learning styles, thinking styles, or working styles. Over a decade after creating his theory on multiple intelligences, Gardner (1995) clarified that in contrast to style, an intelligence is more of a capacity to understand and/or interact with particular content in the world. However, students still voice that they have preferences on how they wish to learn because it is the most effective way for them, whether it is visual, auditory, or kinesthetic. Surprisingly, when these learning modalities are put to the test under controlled conditions, they make no difference; students learn to the same extent whether they are using their preferred way of learning or not (Riener & Willingham, 2010). This is largely because humans are not locked into having only one type of intelligence; all of them are utilized at varying levels at different points in time.

“The MI theory leads to three conclusions: 1. all people possess the full range of intelligences: that is what makes human beings, cognitively speaking. 2. No two individuals—not even identical twins—have exactly the same intellectual profile because, even when the genetic material is identical, individuals have different experiences (and identical twins are often highly motivated to distinguish themselves from one another.) 3. Having strong intelligence does not mean that one necessarily acts intelligently. A person with high mathematical intelligence might use her abilities to carry out important experiments in physics or create powerful new geometric proofs; but she might waste these abilities in playing the lottery all day or multiplying ten-digit numbers in her head” (Gardner, 2006, p.23).

Multiple Intelligences and Autism

All people have multiple intelligences with strengths and weaknesses in different areas, but people on the autism spectrum tend to have extremes. Temple Grandin, an autistic author on current autism research and the inner workings of the brain, is a doctor of animal science and professor at Colorado State. Grandin herself has said that people with autism are particularly skilled at one way of seeing the world and truly terrible at others. Instead of having a more normal balance of multiple intelligences, people with autism can be separated into three types of thinkers: visual, verbal, and pattern (Grandin, 2013).

- 1. Visual:** Temple Grandin is a visual thinker and describes it as “thinking in pictures”. Drawing and other art skills should be encouraged. Verbal responses can take longer because each request must be translated from words to pictures before it can be processed.

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2. **Verbal:** These people love lists and numbers and often will memorize timetables or sports statistics. Other interests include history, geography, weather, and foreign languages.
3. **Pattern:** These people like finding relationships between numbers or musical notes. Some may have savant-like calculation skills or be able to play a piece of music after hearing it only once.

For more on learning theory and intelligences in autistic persons, see the web links below.

Teaching Strategies that support this Learning Theory

- Problem-based Learning
- Project-based Learning
- Experiential Learning
- Service Learning

Linda Campbell, author of *Teaching & Learning through Multiple Intelligences*, describes the following five approaches to adding Multiple Intelligences into any classroom (adapted from [Guignon, 2010](#)).

- **Lesson Design:** Addressing multiple intelligences directly in lesson design; team teaching where each instructor focuses on their own intelligence strengths; allowing students an opportunity to create curriculum in what Hoellermann (2014) calls “Open Innovation.”
- **Interdisciplinary Units:** Within a variety of subjects, the flexibility of particular topics can be utilized to combine multiple intellectual approaches (i.e. visual, verbal, interpersonal, etc) into one assignment.
- **Student Projects:** Students can learn to initiate and manage their own projects and explore which intelligences suit them best in their approach.
- **Assessments:** Assessments aligned to learning outcomes will allow students to demonstrate mastery over what they have learned. As with the curriculum, students can be allowed to have a say in the way that they will be assessed while still meeting the teacher’s criteria.
- **Apprenticeships:** Apprenticeships allow students to use discipline and effort over time in order to gain mastery of an important skill. Gardner feels that apprenticeships should take up about one-third of a student’s educational experience (Guignon, 2004).

Technology Tools that support this Learning Theory

To view a comprehensive list of technology tools that align with the different intelligences, view Aditi Rao’s [comprehensive guide to technology and multiple intelligences](#). In the guide you will see each intelligence explained, followed by a list of technology tools that caters to that intelligence. Each technology is then linked to its source as well as briefly described. However, not all of these tools are fully supported by ITS. For a list of our supported Enterprise tools, see our [Technology Tools webpage](#).

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On the Web

- [Multiple Intelligence Self-Assessment](#)
- [Temple Grandin on autism](#)

In the Library

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