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## Multiple Intelligences

The traditional mode of teaching, which is termed frontal teaching or chalk and talk, has not been successful for all students as is evidenced by the dropout rate of 50% in high schools in the United States (Snyder, 1999, p. 11). Statistics such as these portray a serious educational problem. The achievement of the American dream of completing an education should not just be for those that can score high on a traditional intelligence test. In 1983, Howard Gardner developed the theory of Multiple Intelligences which explains the presence of nine different Intelligences: these include Bodily/ Kinesthetic, Existential, Interpersonal, Intrapersonal, Logical/ Mathematical, Musical, Naturalist, Verbal/Linguistic, and Visual/Spatial (Gardner, 1997, p. 8). The following are the personal learning styles based upon the nine Multiple Intelligences.

1. **Bodily/Kinesthetic Intelligence** is the proficiency of using the entire body to express ideas and feelings and the competence of using the body to produce or transform things (Gardner, 1983, pp. 205-236).
2. **Existential Intelligence** is the appreciation of spirituality and understanding questions about life. This intelligence relates to exploring human existence in the universe (Gardner, 1999, p. 115).
3. **Interpersonal Intelligence** is the proficiency of an individual in perceiving the moods, aims, motivations, and emotions of others (Gardner, 1983, pp. 237-276).
4. **Intrapersonal Intelligence** is having a positive self-concept and life direction which is intrinsically grounded. The competency in knowing oneself and acting to modify oneself based on that knowledge (pp. 237-276).
5. **Logical-Mathematical Intelligence** involves the elevated skill of manipulating and understanding numbers and the ability to reason effectively (pp. 128-169).
6. **Musical Intelligence** is the ability to appreciate, distinguish, compose, and perform in various musical forms (pp. 99-127).
7. **Naturalistic Intelligence** is the ability to appreciate, categorize, classify, explain, and connect to things encountered in nature (Gardner, 1999, p. 115).
8. **Verbal/Linguistic Intelligence** is the ability to understand, use, and manipulate written or spoken words productively (Gardner, 1983, pp. 73-98).
9. **Visual/Spatial Intelligence** is characterized by being able to see an image or situation and quickly assess areas that could be changed to transform or improve the appearance (pp. 170-204).

In his 1983 landmark book *Frames of Mind*, Dr. Howard Gardner of Harvard University introduced his theory of Multiple Intelligences. Gardner is the author of many books and articles. His theory of Multiple Intelligences has challenged long-held assumptions about intelligence.

Gardner's (1983) theory conceptualized intelligence as consisting of several distinct intelligences rather than a singular cognitive capacity. Multiple Intelligences celebrates the uniqueness and diversity of all students. Gardner suggests the need for a broader view of the human mind and of human learning than what currently exists. Multiple Intelligences holds that every student is smart not just in one or two ways but in many. Gardner believes instructors must attempt to reach all students and develop their diverse intelligences. Moreover, instructors need to teach in a variety of ways which provide varied learning experiences for students.

Intelligence traditionally has been defined in terms of Intelligence Quotient (IQ), which measures a narrow range of Verbal/Linguistic and Logical/Mathematical abilities (Gardner & Hatch, 1989). Gardner argues that humans possess a number of distinct intelligences beyond verbal and logical abilities that appear in different skills and abilities. All human beings apply these intelligences to solve problems, invent processes, and demonstrate their creativity (Gardner & Hatch, 1989).

Throughout most of this century, the popular definition of intelligence is what is measured in an IQ Test. That has basically been how intelligence is viewed (Fellenz & Conti, 1989). To be considered intelligent, a person has to do well on an intelligence test. In fact, one cannot gain access to higher education without doing well on such test (Fellenz & Conti, 1989).

In the 1970's, a group of cognitive psychologists began to feel that the definition of intelligence was also wrong. They felt as though the definition was missing the understanding of what intelligence really is (Sternberg, 1990). The conclusion of Earl Hunt, Jack Carrol, Jim Pelegrino, Bob Glaser, and Robert Sternberg was that what is missing is an understanding of the mental processes that underlie intelligence (Sternberg, 1990). In other words, the tests can give you a score, but what they do not give you is an understanding of the mental processes that underlie the score (Sternberg, 1990).

Howard Gardner (1993) argues that humans possess a number of distinct intelligences beyond verbal and logical skills that are measured on traditional instruments. These intelligences appear in different skills and abilities. All human beings apply these intelligences to solve problems. His concept that celebrates individual differences is the theory of Multiple Intelligences.

Traditionally, intelligence is defined operationally as the ability to answer items on tests of intelligence. The inference from the test scores to some underlying ability is supported by statistical techniques that compare responses of subjects at different ages. The correlation of the test scores across ages and across different tests corroborates the notion that the general faculty of intelligence does not change much with age or with training or experience (Gardner, 1993, p. 15).

However, Gardner believes intelligence is an inborn attribute or faculty of an individual. Human cognitive competence is better described in term of a set of abilities, talents, or mental skills which is referred to as intelligence (Gardner, 1993, p. 15). All normal individuals possess each of the skills to some extent; however, individuals differ in the degree of skill and their combinations (p. 15). This theory of intelligence may be more humane and more controversial than alternative views of

intelligence. Moreover, it more adequately reflects the data of human intelligent behavior (p. 15). Such a theory has important educational implications, including opportunities for curriculum development (p. 15).

Multiple intelligence theory pluralizes the traditional concept of intelligence. Multiple Intelligences is the ability to solve problems or devise products that are of significance in a particular cultural setting (Gardner, 1993, p. 15). The problem solving skill allows one to approach a situation that requires a goal to be met and locate the appropriate route to that goal (p. 16). Multiple Intelligences theory is framed in light of the biological origins of each problem solving skill. Only those skills that are universal to the human species are treated. Therefore, the biological tendency to participate in a particular form of problem solving must also be coupled with the cultural nurturing of that domain (p. 16). For example, the use of language, which is a universal skill, may expose itself particularly as writing in one culture, as oratory in another culture, and as the secret language of anagrams in a third (p. 16).

Gardner (1993) identified intelligences that are rooted in biology and that are valued in one or more cultural settings. Evidence was obtained from several different sources: knowledge about normal development and development in gifted individuals; information about the breakdown of cognitive skills under conditions of brain damage; studies of exceptional populations, including prodigies and autistic children; data about the evolution of cognition over the millennia; cross-cultural accounts of cognition; psychometric studies, including examinations of correlations among tests; and psychological training studies, particularly measures of transfer and generalization across tasks (p. 16). Only those intelligences that satisfied all or a majority of the criteria were selected as bona-fide intelligences.

Gardner based the Multiple Intelligences theory on three foundational principles: (a) individuals are not the same--individuals differences exists; (b) people do not all have the same kinds of minds; and (c) education becomes most effective if these individual differences are considered (Gardner, 1999). It is the existence of the individual differences that started Gardner on his path of developing the theoretical bases of Multiple Intelligences. In addition, he believed his task was to envision forms of education and modes of assessment that would have a firm root in current scientific understanding and that contributes to enlightened educational goals (Gardner, 1993, p. 163). In adult leaning, individuals should be able to understand and articulate their learning preferences, which are specified by their intelligences.

Many educators have begun to recognize that students have unique differences and would like to modify teaching methods to include Multiple Intelligences. However, for educators to apply various teaching methods for the various Multiple Intelligences, they must have a valid and reliable way to identify their Multiple Intelligences. [The Multiple Intelligences Survey (MIS) a valid or reliable tool that is easily accessible to identify the concept of Multiple Intelligences.]

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