Learning Styles and Multiple Intelligences

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INTRODUCTION

A *learning style*, or *cognitive preference*, is a consistent way of responding to and using stimuli in the context of learning. We can learn in many different ways, but when we use our preferred methods, we are generally at our best and feel most competent, natural, and energetic. There are many theories and various instruments to determine learning styles, but they are all essentially based on the idea that individuals perceive, organize, or process information differently on the basis of either learned or inherited traits. The related *theory of multiple intelligences*, introduced by Gardner (1983), states that every individual has a different set of developed intelligences, determining how easy or difficult it is to learn information presented in a particular manner. This can be seen as defining a specific learning style, although some authors (Silver, Strong, & Perini, 2000) claim that the multiple intelligences theory is centered around the content of learning in distinct fields of knowledge, while learning styles focus mostly on the process of learning.

This article presents an overview on learning styles and multiple intelligences, providing some historical context and presenting most relevant learning styles in different categories, focusing on perceptual and sensory modalities, ways of processing information, personality models, and personal talents. It also refers to the purpose and methods of knowing and identifying learning styles, and ways of supporting them in learning environments.

HISTORICAL PERSPECTIVE

The tendency to typify human differences has a long tradition in history, and the number four has often appeared in the taxonomies (Silver et al., 2000).

From the ancient Greeks to the Renaissance, the dominant concept of human personality was that of *Hippocrates' humors*, based on the idea that everyone has four liquids or humors in the body: *blood*, *black bile*, *phlegm*, and *yellow bile*. A similar amount of each humor would result in a balanced human, while an excess of any of them would develop into one of the four types of personality: *sanguine*, *melancholic*, *phlegmatic,* and *choleric*. The sacred *medicine wheel*, in the spiritual stories of the North American Indians, also refers to four human personality traits: *wisdom*, *clarity of perception*, *introspection*, and *understanding of one's emotions*.

In the 1920s, Swiss psychologist Carl Jung (1921) differentiated human personalities in his theory described in *Psychological Types*. Jung observed that, when people's minds are active, they are involved in one of two mental activities: *perceiving*, taking in information; or *judging*, organizing that information and coming to conclusions. He identified two opposite ways people perceive—*sensation* and *intuition*—and two opposite ways that people judge—*thinking* and *feeling*. The combination of these dimensions results in four mental processes. In addition, Jung observed that individuals tend to focus their energy and be energized more by either the external world of people, experience, and activity, or the internal world of ideas, memories, and emotions. He called these two orientations of energy *extraversion* and *introversion*. Combining the two different orientations to the world with the four mental processes, Jung described eight fundamental patterns of mental activity available to people. While these eight mental processes are available to and used by everyone, he believed that people are innately different in what they prefer: their *dominant function*. Based on his observations, Jung concluded that differences in behaviour result from

people's inborn tendencies to use their minds in different ways. As people act on these tendencies, they develop patterns of behaviour: *psychological types* (Jung, 1961/1989; Myers, 2000).

Since the mid-1940s, there have been several influences contributing to the emergence of different models of learning styles, many of which were influenced by the Jungian theory on psychological types. A large number of researchers working in relative isolation have generated an extensive list of style labels. However, a careful examination of these lists discovers similarities that help to simplify and group concepts.

Defining intelligence is an endeavour that has long been the concern of the human kind (Silver et al., 2000). In ancient Greece, Plato believed that one could only be considered intelligent by being aware of one's ignorance, and could only approach the understanding of an insignificant abstraction of a much larger and perfect truth, mostly through the study of geometry and logic. Aristotle disagreed with his teacher. For him, instead of a search for unattainable ideals, the act of gathering information was a venture of the human soul. He believed that humans were capable of two great mental abilities: quickly understanding causes and situations, and making good moral choices. Buddhist philosophy mentions three qualities of mind—wisdom, morality, and meditation—that guide humans to correctly view, think about, and act in the world. Christian philosophers in the Middle Ages tended to de-emphasise intelligence over faith and piety. Renaissance thinkers revalued human capacities of reason and creativity as forces capable of controlling and even remaking the world. The 20th century witnessed a considerable shift in the definition of intelligence, encompassing an increasing understanding of the human brain and its cognitive processes, including the theory on the brain's hemispheres, the concept of emotional intelligence (Goleman, 1995), and the work carried out by neuroscientists like Damásio (1994). The theories of psychologists like Jean Piaget on how humans construct knowledge also played an important role in the understanding of the brain's learning capacities. But, in spite of a more scientific and precise understanding of human cognition, the concept of intelligence remains unclear. Psychometric indicators of intelligence, such as *Intelligence Quotient (IQ) tests*, became widely accepted for some time. However, in recent years, Howard Gardner has been among those who have made pioneer breakthroughs in shattering the "fixed IQ" myth. The major fault with IQ tests is that they confuse logic with overall intelligence. Some tests also confuse linguistic ability with overall ability. Instead, Gardner defines intelligence as the capacity to solve problems or to create products that are valued in one or more cultural settings. We may recognize different types of intelligence in various fields and contexts. In spite of all these approaches and theories, the human mind still holds its mysteries that challenge our understanding and will inspire our research for years to come.

LEARNING STYLES

According to Conner and Hodgins (2002), learning styles come from three schools of thought:

- **Perceptual Modality:** biologically based reactions to the physical environment. It refers to the primary way our bodies take in information, such as auditory, visual, smell, kinesthetic, and tactile.
- **Information Processing:** distinguishes between the way we think, solve problems, and remember information. This may be thought of as the way we process information.
- **Personality Models:** refer to the way we interact with our surroundings, attention, emotions, and values.

Other authors (Theroux, 2002) differentiate perceptual (e.g., hemispheric dominance) from sensory models (e.g., VAK [visual, auditory, and kinesthetic]), and personality (e.g., Myers-Briggs) from personal talents (e.g., Gardner's multiple intelligences). Anyway, regardless of natural learning preferences, it is important to recognize that some tasks and situational factors demand specialized learning modalities.

In this section, we present the most significant and referenced learning styles in the previous categories. Although multiple intelligences may also define learning styles, for their specific focus, they will be addressed in the next section.

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