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Learning Styles: Concepts and Evidence

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Purpose

This review summarized all the existing research examining the validity of matching instruction to students' learning styles.

Summary

The review authors established rigorous criteria prior to reviewing the research. Studies that included methods that aligned with these criteria were considered trustworthy and useful. Only one study met all of the criteria. Reviewers found insufficient evidence to support practices that attempt to match instruction to students' learning styles.

Implications

Students have learning strengths. This was not in dispute; however, there is limited evidence supporting learning style matching approaches. Practitioners are encouraged to seek instructional approaches with stronger research support.

Abstracted from

Pashler, H., McDaniel, M., Rohrer, D., & Bjork, R. (2008). Learning styles concepts and evidence. Psychological Science in the Public Interest, 9(3), 105-119.

About the Author

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Introduction

Learning styles is a popular phrase used to refer to the concept that individual learners have a particular modality through which they learn best (e.g., auditory, visual, kinesthetic) and corresponding instructional methods should be designed and implemented to maximize learning outcomes. Numerous theories, published tests, and curricula and programs have been developed based on this idea, and education and human service communities have embraced learning styles with little question to their validity (Pashler, McDaniel, Rohrer & Bjork, 2008). While learning styles are commonly accepted in practice, researchers have debated the need to match instruction to learning styles for decades (Dunn & Dunn, 1979) and there are many methodological limitations to the body of research that promotes learning styles (Freedman & Stumpf, 1980; Coffield, Moseley, Hall & Ecclestone, 2004).

Featured Review

To help resolve this debate, Pashler, McDaniel, Rohrer, and Bjork (2008) were commissioned by *Psychological Science in the Public Interest* to critically analyze the available evidence supporting the validity of the popular learning styles theory. They focused their review on the meshing hypothesis, which states that an alignment between instruction and learning style will produce optimal learning outcomes. The reviewers established criteria for what would constitute solid evidence of this hypothesis before delving into the research as to limit their biases. They determined studies that: a) measured participants' learning styles, b) employed random assignment, and c) delivered the same outcome measures to all participants would adequately test the meshing hypothesis. If participants with a given learning style performed better when assigned to a matching instructional condition as opposed to a mismatched instructional

condition, the meshing hypothesis would be supported. If no significant interaction between learning style and instructional condition emerged, the hypothesis would be unsupported.

Best Available Evidence

The reviewers found that, from among the vast literature available on the topic, only one study offered sound support for the meshing hypothesis. This study explored intellectual strengths as predictors of performance when the instructional method was tailored to match creative, practical or analytical styles. High school students who showed a particular strength in one of the three areas were randomly assigned to one of four versions of the same course, each with a different instructional approach: one creatively oriented, one practically oriented, one analytically oriented, and one memory oriented (control condition). Students' performance in the course was determined based on two assignments, two exams, and a final project, all scored by four raters (Sternberg, Grigorenko, Ferrari & Clinkenbeard, 1999). They found that individuals who were assigned to a version of the course that matched their area of strength performed better. Pashler et al. (2008) noted, however, that this study had some methodological flaws, including subjective measures to gage course performance. They also asserted that, though this study met the pre-established criteria, the learning style methods that are most popular (and most marketed) have little in common with those shown to be effective in the Sternberg et al. (1999) study. None of the studies of popular learning styles methods presented this kind of evidence.

Pashler et al. (2008) did not dispute that individuals have learning strengths and preferences. However, they concluded that the current evidence supporting the use of learning style-matched approaches is virtually non-existent. This is partly due to the small number of studies investigating the interaction between learning style and instructional condition and the small number of studies employing sound research methods.

Professional Judgment, Client, and Context

The notion that individuals learn most effectively when information is presented to them in a way that compliments their preferred learning style has become so widely accepted and promulgated that many professionals may assume it is empirically supported. However, as Pashler et al. (2008) show in their review, the evidence is lacking. Since there are few methodologically sound studies on the topic, it is inaccurate to assume that the meshing hypothesis has been disproven. Regardless, it is fair to conclude that the current evidence is insufficient to justify widespread adoption of learning style products and techniques. Practitioners are encouraged to seek instructional methods and classification systems for which there is stronger evidence.

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