

# Chapter 6

## Leveraging the Economics of Belief to Provide Evidence-Based Alternatives to Learning Styles

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### **ABSTRACT**

*The myth that people learn best when teachers match instruction and assessment with students' "learning styles" is both persistent and pervasive. Pre-service teachers are particularly susceptible to the influence of coursework that presents "learning styles" as an accepted and evidence-based practice. Using popular neuromyths, such as "right-brain/left-brain" learners and the visual-auditory-kinesthetic (VAK) paradigm as exemplars of the problem, the authors present classic and current evidence highlighting why "learning styles" are not supported by either cognitive psychology or neuroscience. The authors examine reasons why these myths continue to persist, including the role of cognitive dissonance and confirmation biases, and present recent evidence that endorsement and usage of these practices by teachers can have damaging impacts on students, particularly young children. They argue that teachers and students alike are better served through the use of well-researched and validated instructional strategies, such as problem-based learning, than*

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*well-intentioned but misguided learning myths.*

## INTRODUCTION

Teacher preparation is “arguably one of the most cognitively and emotionally challenging efforts that humans attempt.” (p. 533, Whitcomb, 2003). This challenge is compounded by the fact that aspiring educators must assimilate new ideas and techniques into their teaching “toolboxes” that may look different or even be the complete opposite of how they themselves were taught. Other applied scientific fields, such as medicine, also have this issue. For example, over the last few decades the advice of medical professionals for new mothers in the West has been to avoid peanut products and keep infants and toddlers away from peanut-based foods until they are at least three-years of age to prevent peanut allergies (Herrera-Perez et al, 2019). However, despite the publication of strong evidence disproving a relationship between early peanut exposure and later development of peanut allergies (Du Toit et al., 2015), medical myths persist in practice (Kolata, 2019).

In education the strongest corollary to medical practices that have been subsequently found to lack the necessary evidence to justify their usage is the continued incorporation of “learning styles” into instruction and assessment by educators of all levels: from kindergarten to college (Newton, 2015; Dekker & Kim, 2022). While some may believe that academic institutions teaching education (or medicine) might be immune to the kinds of urban legends that seem more prevalent in traditional domestic contexts, that is unfortunately far from the case. Indeed, technological advancements like social media have likely contributed to the proliferation and persistence of learning styles myths (Aïmeur, Amri, & Brassard, 2023).

Put simply, “learning styles” (LS), which will be used *sans* quotations for the remainder of this work, are the pedagogical (and andragogical) belief that the ways that humans learn best can be categorized according to different dimensions, such as “right-brained” or “visual”. Though the idea of learning styles was born out of a series of models which were created for highly specific educational situations (e.g. special education), over time the content and contexts of these models became consolidated, and their foundation in the science of learning lacking, making the existence of learning styles rooted more in scientific myth than in scientific fact (see Robinson, Yan, and Kim, 2022 for a current series of reviews addressing these myths).

In this chapter we will explain exactly why teacher preparation programs must eschew the teaching of learning styles. Specifically, we will address how they are not based on the actual science of learning, we will discuss the psychology behind their continued persistence, provide evidence for how they negatively impact learners,

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