

## ***Which Common Educational Myth Limits Student Achievement?***

What stifles motivation, taints students, and shackles educators?

By Dr. Bobby Hoffman

One of the most common misconceptions regarding teaching and learning is the belief in using personalized instructional strategies with specific students based on the perception of the student's "learning style" preference. Learning styles are typically defined as "the view that different people learn information in different ways" (Pashler, McDaniel, Rohrer, & Bjork, 2009, p. 106). After all, it makes intuitive sense that a person who prefers to read might find listening to a lecture boring, and someone who dislikes reading will learn more by watching a video. This differentiated presumption often leads to a revision in teaching methods by educators who strive to meet the alleged individualized needs of learners. Unfortunately, this logic is misguided, and sadly educators who design instruction with learning styles in mind are unintentionally harming their students in several ways.

In a recent survey of 225 students studying to be teachers, 84% strongly agreed or agreed with the statement "Academic achievement increases when teachers present material in the student's preferred learning style." (McAfee, Xu, & Hoffman, 2015). In addition, pre-service teachers are highly trusting in the accuracy of their unjustified learning-style belief, indicating a 90% confidence level when asked to verify the strength of their conviction. Despite the prevalence of learning-style beliefs, little if any scientific evidence suggests that learning styles actually exist. Daniel Willingham ([link is external](#)) a University of Virginia psychology professor and prominent learning styles researcher with dozens of scholarly publications over the last 25 years, once indicated "no evidence suggests that catering to those preferences will lead to better learning."

A cottage industry has been spawned supporting the effectiveness of instruction based upon learning style use. Supporters claim that when learning styles are ignored learners become anxious about their ability to learn and since learning styles fluctuate within and between students, instructional design should accommodate various learning styles. Critics of learning styles often maintain that reliance upon learning styles is an inappropriate pedagogy because learning objectives are best achieved when the instructional style matches the type of content being studied. For example, teaching geography and mathematics would be ineffective when relying primarily on an auditory style of instruction. These subjects are better taught using visual aids. Similarly, domains such as reading and vocabulary require auditory support as well as visual instruction for the purposes of pronunciation and proper spelling.

Convincing non-believers that learning styles don't exist is challenging because personal opinion often prevails despite the available scientific evidence. Many of my own students passionately defend their learning-style belief based upon personal experience and how they think they learn best. However, few, if any of the supporters of learning styles recognize the lethal consequences of holding a false belief. Beside the ramification that pre-service teachers harboring a learning-style belief will perpetuate an instructional myth, there are harmful consequences to motivation for learning and performance ([link is external](#)). A belief in learning styles will influence how learners approach knowledge acquisition and respond to instruction, as well as how educators view their overall teaching effectiveness. There are at least five reasons to beware the ominous specter of a learning-style belief.

## **Learning styles foster confirmation bias and unwarranted impressions of content mastery**

Think about the challenge of fixing a computer problem or the headache that often accompanies assembling modular furniture or a do-it-yourself barbecue. Some of us will diligently read the instructions over and over, while others will automatically turn to YouTube videos to overcome the instructional challenge. By considering some instructional resources, but not others, individuals exclude potentially valuable information included in the less preferred modality. In other words, by default individuals choose their preferred type of instruction. Typically, an individual will respond positively to information that confirms their beliefs and may ignore or filter out information inconsistent with beliefs, otherwise known as exhibiting a confirmation bias. Research also reveals that individuals become overconfident in knowledge gains and purported understanding when learning from pictures and graphs together, in comparison to learning from text alone (Jaeger & Wiley, 2014 (link is external)). In turn, overconfidence in understanding often leads to minimal effort investments in learning and a premature end to studying before knowledge is actually mastered. Thus, at least for those that espouse to be visual learners, a myopic focus on visual materials alone may impede both motivation and learning and not advance knowledge gains.

## **Preferred learning style may draw attention to irrelevant aspects of learning**

Imagine you are a native English speaker and an “auditory learner” learning Italian. As such your success would be enhanced by focusing on the auditory features of the words to be learned. For example, you might remember the Italian word for hot “caldo” based upon the similarity to the English word “cold.” According to learning style theory, we would predict that individuals with an auditory preference would always be more successful learning a new language than a visual or kinesthetic learner. Unfortunately this finding is not confirmed by research. In the example above, the auditory similarity of the Italian word “caldo” to “cold” would likely inhibit learning the Italian word for hot because the sound is highly similar to the English word cold. Effective language learning (like most other forms of learning) is not based primarily on auditory or visual cues, but instead is based upon how deeply learners process information. Learning is enhanced by ascribing meaning to new knowledge, and not based on connections to the superficial qualities of the material to be learned or the learners learning style in relation to the type of material (Kavale & Forness, 1987). Attention to material that supposedly coincides with the person’s learning style may actually result in a focus on irrelevant content inhibiting, not helping, the learning process.

## **Over-reliance on learning styles limits students from using a broad repertoire of strategies**

Self-regulation is a commonly used term to describe the strategies of planning, monitoring, and reflecting on one’s learning. Learners that are highly self-regulated demonstrate active command over their knowledge acquisition and are consciously aware of what they are learning by monitoring the quality and thoroughness of the learning outcomes they achieve. Research consistently supports the notion that self-regulated learners achieve superior learning outcomes in comparison to their non-regulated peers.

One decisive advantage of the successful self-regulated learner is the willingness to use a diverse repertoire of performance strategies. Alternatively, individuals who approach learning with a focus on their dominant learning style will tend to have a more limited learning scope, avoiding or rejecting strategies that contrast with their preferred style, thereby limiting their ability to self-regulate effectively. A learner who prefers auditory or visual learning will

likely be unmotivated to use alternate approaches inconsistent with one's preferred style. For instance, we surely would not expect auditory learners to focus on charts and graphs to supplement learning, or to develop a written timeline of historical events as a means to enhance learning. The inordinate focus on a preferred learning style may limit opportunities for achievement subsequently resulting in decreased motivation when the eventual roadblocks of the learning process are encountered.

### **Learning styles shift accountability for learning gains from the teacher to the learner**

In the age of accountability, the career success of many teachers is staked on prompting measurable learning gains in students. Consequently, schools advocate and teachers implement differentiated instruction. The focus implies that each student learns material differently and to enhance learning teachers should present instruction and provide activities that correlate with the learner's preferred style. For example, the Colorado State University maintains a website ([link is external](#)) that outlines particular learning strategies for particular types of learners, including approaches as specific as suggesting auditory learners learn better when "repeating facts with eyes closed" and tactile learners benefit from "studying with others." What the website fails to reveal is that the strategies advocated support learning gains regardless of the style of the learner. Unfortunately, advocating specific strategies for specific learners and categorizing strategies actually shifts accountability from the teacher to the learner. Instead of focusing on which instructional strategy is best for a particular topic, the learning style focus emphasizes pedagogy based upon the individual learner. When learning outcomes go awry, the stage is set to rationalize the lack of gains based on teaching strategies incompatible with the learner and not on more appropriate instructional choices by the educator.

### **Learning styles create a dependence on technology in the classroom**

Perhaps the greatest consequence to both educators and learners is the ill-advised use of technology in the classroom. Educators in an attempt to differentiate instruction, especially for the benefit of the "visual learner," often advocate the use of computers for learning. Ironically, most research on the influence of learning modality on achievement outcomes returns null effects (Clark & Feldon, 2005), as the ability of a competent instructor is far more influential on learning outcomes than the method used to deliver the material. Yet, many teachers are quick to insist that watching videos and using computers are imperative to promote learning gains.

Massa and Mayer ([link is external](#)) (2006) tested the preferred modality hypothesis using 14 different measures of cognitive style, learning preference, spatial ability, and general achievement to determine if visual learners (those who prefer visual instruction) learned better from multimedia instruction when help screens offered pictures compared to verbal learners (those who prefer verbal instruction) who viewed help screens using words. No surprise, 13 out of the 14 tests concluded there was no benefit of matching instruction with modality preference. As Daniel Willingham ([link is external](#)) often advocates, the use of technology may provide novelty and an engaging learning context, but ultimately any use of digital media should be based upon sound pedagogy using the most appropriate mechanisms based upon learning objectives, not the perception of learning styles.

While the stated reasons for avoiding reliance on learning styles and deferring to seemingly preferred modalities are strong and consistent, nevertheless educators are encouraged to use a repertoire of learning strategies to promote learning gains. The strategies should not be based upon appeasement of learning styles, but instead be based upon the type of instructional

content being taught. Examples include creating novel learning contexts that engage learners and stressing pedagogies that connect with a learner's background. One of the most ubiquitous findings in educational research is that when educators provide relevant and authentic content that appeals to the culture and experience of the learner, achievement gains follow. By using a multitude of different approaches to learning, the seasoned educator enhances the probability of making a connection with student. The connection should not be based on preferred modality or purported learning preference, but instead leverage evidence-based strategies designed to promote engagement and deep processing of the content.

Reference:

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