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The Emperor's New Clothes: Learning Styles and Multiple Intelligences

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OPINION

The Emperor's New Clothes
Learning Styles and Multiple Intelligences

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For decades, pre-service teachers have been introduced to brain-based learning concepts that claim to address various learning abilities in their future students. For example, Howard-Jones (2011) has reported that out of 158 graduate education trainees surveyed, some "82 percent considered [that] teaching children in their preferred learning style could improve learning outcomes" (p. 111). Filled with idealism, a caring nature and a desire to advance the intellectual development of those who will become their academic responsibility, teacher candidates have been eager to acquire knowledge of any information that will not only improve their understanding of how their students' will learn, but also assist teacher candidates themselves in designing instructional approaches that might better facilitate that learning.

Initial exposure to brain-based learning theory can be found in the myriad of introductory education texts that populate the publishing landscape. Many reflect a topical buffet that includes pedagogical considerations (e.g., Sadker & Sadker, 2006). Often those discussions on instructional strategies incorporate information on concepts associated with psychology such as learning styles, multiple intelligences and, more recently, brain gym. This information has not been disseminated to pre-service teachers only. Many practicing teachers have had professional development (PD) on these very same concepts, often conducted by the originators themselves (e.g., Ruth and Ken Dunn; Paul and Gail Dennison). But most PD is delivered by those who have found themselves a relatively profitable niche for their services and related wares based on the conceptual work of others. Cumulatively, these "learning" resources (i.e., workshops, books, DVDs, lesson plans) have developed into a significant commercial enterprise. The publishing industry is awash with titles such as "Multiple Intelligences for the Classroom" (Armstrong, 2009), "Teaching Elementary Students Through Their Individual Learning Styles" (Dunn & Dunn, 1992), and "Brain Gym: Teacher's Edition" (Dennison & Dennison, 1994). And their conceptual association with the brain and neuroscience has only served to enhance their apparent legitimacy in the eyes of many educators who view them as valuable knowledge and potential instructional approaches designed to improve student learning. In many instances, these concepts have found an ally in administrators who are not only contributory to the planning of their teachers' PD, but some of whom have also mandated that teachers' lesson planning incorporate strategies to address these concepts. As recently as 2009, the District of Columbia public schools (DCPS) put forth its Teaching and Learning Framework (DCPS, 2009; Willingham, 2009) with the expressed intent of identifying for its district teachers what it meant to be instructionally "effective." Included in that document is the claim that "effective teachers… target multiple learning styles" (DCPS, 2009, Teach 4). How was this assessed as an effective strategy? Because by "purposefully matching instructional strategies to various student learning styles, effective teachers ensure all students have the opportunity to meet the lesson objectives" (Teach 4). And DCPS is not alone in such assertions. Even a cursory

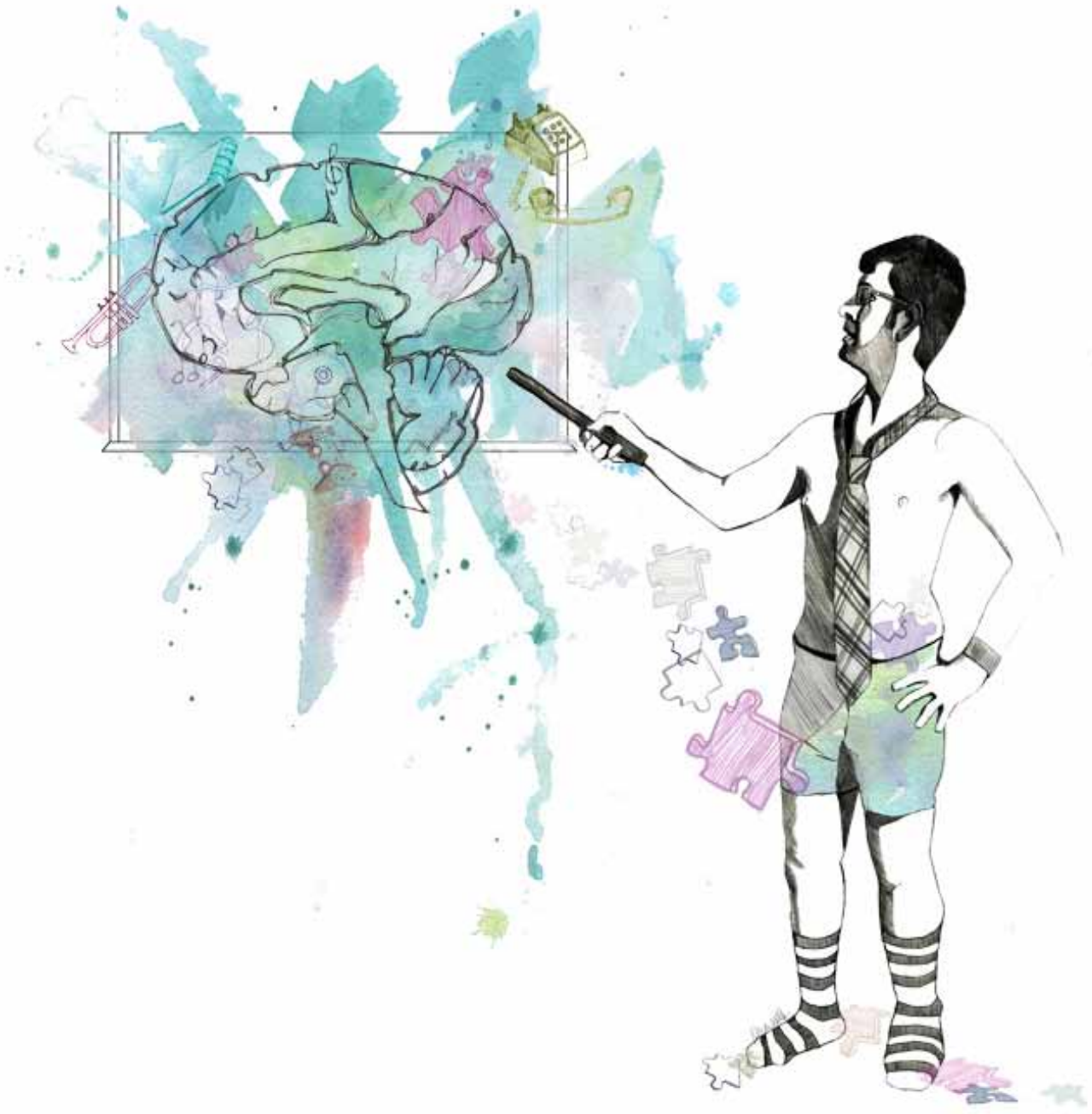

Illustration by Danielle Fritz, GVSU Student

review of websites for schools in western Michigan reveals that many make reference to their incorporation of learning styles, presumably as a worthwhile public assertion of their advanced instructional competence. Many readers are probably familiar with such planning requirements and public claims, and may well have their own examples to share. But there is one small, nagging problem.

The Problem

Research evidence does not support the effectiveness of adapting instructional strategies to students' learning styles or their so-called multiple intelligences (Coffield et al., 2004a, 2004b; Howard-Jones, 2009; Pickering & Howard-Jones, 2007; Willingham, 2009, 2004). Researchers are rather unequivocal in stating that those particular "brain-based" strategies do not work as purported.

Learning styles: These are generally known as "a set of learner characteristics that influences their response to different teaching approaches" (Howard-Jones, 2009, p. 29). Given that there is no single learning style inventory or instrument, this group of assessments is not unified (Coffield et al., 2004a, 2004b). In a major study sponsored by the Learning Skills Research Center and the U.K. Department of Education and Skills, Coffield et al. (2004a) identified over 71 learning style inventories before narrowing the list to 13 major models. The remainder was determined to be variations. The authors' conclusions

drew positive attention to the general principles underlying many learning styles models including the affirmation that all students are able to learn, encouragement of teachers to respect difference and the promotion of a range of teaching and assessment techniques (p. 33). But, before a learning style model can be claimed as a "scientifically robust model, evaluation should be carried out by external, independent researchers who have no interest in promoting it" (Coffield et al., 2004a, p. 33). After reviewing thousands of internally and externally-derived studies, the central problem remained. There was little third party research data that confirmed much of what has been claimed for decades. "It has not been possible to answer the [central] question 'What proportion of the variance in achievement outcomes is attributable to learning style?' because we only found one reasonably relevant study" and that study found that only 8% of the outcomes were attributable to a combination of personality and learning style (Coffield et al., 2004a, p. 127). The recommendations from Coffield et al. were fairly explicit, "with regard to Dunn and Dunn..., our examination of the reliability and validity of their learning style instruments strongly suggests that they should not be used in education" (p. 119).

Multiple intelligences: The major problem with Dr. Howard Gardner's theory rests with his use of the term "intelligences," or what every other cognitive psychologist calls "abilities." His notion of different, independent intelligences may appeal to the caring nature of educators who seek explanations for the struggles in learning that they witness in their students, but as welcoming as his theory may be, most researchers see Gardner's assertions as contradictory to accepted wisdom about intelligence. Its dominant view is as "a multifaceted phenomenon with a hierarchical structure" (Willingham, 2004, p. 2), not multiple, independent varieties. His theory would appear to imply "that the mind is a confederation of largely independent, self-sufficient processes… [whereas] intellectual abilities are correlated, not independent" (p. 5). Gardner's MI theory also suffers the same general fate as learning styles – empirical evidence is extremely lacking (Waterhouse, 2006). In fact, Waterhouse points to earlier reviews of the MI literature by others in 1994, 2000 and 2004, with the same result. Furthermore, in 2000, Gardner himself admitted that there was little hard evidence (Waterhouse, 2006, p. 208), and four years later he asserted that he would be "delighted were evidence to accrue" (Gardner cited in Waterhouse, 2006, p. 208). But the issues of independent intelligences and lack of empirical evidence are not the only problems. Like learning styles, "the ready availability of multiple intelligences classroom materials… leaves the impression that there is a market for such materials" (Willingham, 2004, p. 6). And there is. Yet Gardner also understands that he may no longer have control over his theory. "I have come to realize that once one releases an idea… into the world, one cannot completely control its behavior any more than one can control those products of our genes we call children" (Gardner cited in Howard-Jones, 2009, p. 3). The result of that loss of control can be witnessed in the momentum and assumed status that has built up around MI, one that continues to push for both curricular expansion—"that

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schools should appeal to all of the intelligences"—and instructional strategies—"namely, to teach content by tapping all of the intelligences" (Willingham, 2004, p. 6). Even Gardner has been very critical of both, and acknowledges the potential for strategies to be a trivialization (p. 6).

Closing Remarks

In a world of "evidenced-based instruction," "best practices" and "data-driven decision-making" how can the use of strategies whose scientific worthiness does not exist continue to proliferate, seemingly impervious to reasonable challenge? How is it that this " 'parallel world' of pseudo-neuroscience" (Howard-Jones, 2011, p. 110) comes to be found in so many schools? Part of the answer lays in the success of commercial marketing strategies to educators.

> [M]any of the teaching initiatives that did not possess a scientific basis were often presented by individuals who had given considerable thought to the needs of the educators, were able to provide teachers with something that they could use in class straightaway, and had developed their dissemination style to be memorable and appear meaningful. (p. 112)

But, scientific findings almost never translate directly into lesson plans (Howard-Jones, 2008a, p. 121) and too often trivialize a program that may well have begun "with some element of valid science" (Howard-Jones, 2008b, p. 1).

Part of the problem might also rest with some educators. "Undoubtedly, one contributory factor is the enthusiasm of teachers to understand more about learning… [and] when coupled with a lack of information about the brain in teacher training, it has made teachers a soft target for pseudoscience" (Howard-Jones, 2008b, p. 1). Related might also be a few educators' inclination toward favoring practical experience over scientific validation. "We've been doing it for years without scientific underpinning…. What the scientific underpinning does tell you is why it's working, as opposed to we *know* it works" (Pickering & Howard-Jones, 2007, p. 111).

The solution rests not only with increased scrutiny by educators. There is also a problem within the field of neuroscience. As more knowledge about the brain becomes available, lines of communication between researchers and classroom practitioners—the creation of an interdisciplinary dialogue—are in great need of bolstering to pre-empt potential misunderstandings of research findings (Howard-Jones, 2008a). As brain and learning expert Dr. Manfred Spitzer, a faculty member in the Department of Psychiatry at the University of Ulm in Germany, noted "In medicine, we have an excellent system in place to go from basic research to clinical practice, while in neuroscience we have the basic understanding of how the brain learns but still need to figure out how to translate this into the classroom" (Schultz, 2009, p. 8).

Yet the central issue of research-based classroom practice remains. "Basing education on scientific evidence is the hallmark of sound professional practice and should be encouraged with the educational profession wherever possible. The counter-argument only serves to undermine the professionalism of teachers, and so should be resisted" (Geake, 2008, p. 124).

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