

Report: Learning Styles, Myers-Briggs, and Pedagogy

Authors

Ryan T. Cragun, PhD, Assistant Professor of Sociology

Deborah L. Cragun, MS, CGC, Visiting Professor of Biology

Summary of Findings

After an extensive examination of the education, psychology, and pedagogy literature, we have arrived at the following conclusions regarding learning styles and Myers-Briggs. Detailed discussions of these points and references follow the summaries:

1. The measurement instruments for “learning styles” (e.g., LSI, VAK, etc.) are generally not tested for reliability or validity. When tested, they have been shown not to be reliable or valid.
2. The measurement instrument for Myers-Briggs has also been shown not to be reliable or valid.
3. As a result of points 1 and 2, neither learning styles nor Myers-Briggs inventories are useful measures or indicators. For all intents and purposes, they tell you nothing.
4. Using learning styles and/or Myers-Briggs as indications of personality types, ways of learning in school (college in particular), ways of interacting with others, or predictors of career paths or college majors results in misguided advice to individuals who are taught to believe these indicators are worthwhile instruments. Discouraging someone from pursuing a career in a field based on invalid and unreliable measurements is a serious disservice to that individual.
5. We suggest that any discussion of learning focus on the learning process itself. Discussing mnemonic strategies and finding ways students can make what they are studying personally relevant have more evidence supporting their effectiveness and seem as though they would be more beneficial to students in the long run. Talking about ways to facilitate learning without “typing” students into a specific learning classification is a more reasoned approach as it will prevent students from using their alleged “learning style” as a crutch or justification for not performing well in class.
6. We also suggest that any discussion of personality focus on the validated measures of personality found by psychologists (e.g., the Big Five). Discussions of interpersonal interaction should focus on finding ways to get along with people regardless of perceived personality differences.

Learning Styles

The basic concept of learning styles is that there are different modalities by which people learn. There are dozens of proposed learning styles and learning style measurement instruments (Coffield et al. 2004). One of the first learning styles was that proposed by Kolb (1976, 1983) in his theory on

experiential learning. Another widely known learning style is VAK, which stands for Visual, Auditory, and Kinesthetic (Dunn 1989; Dunn and Griggs 2000). The idea behind these learning style systems is that individuals have “preferences” for processing information in one particular format. In the VAK system, individuals are “typed” as: (1) “visual learners,” meaning they prefer the use of flashcards, notes, charts, maps, etc.; (2) “auditory learners,” meaning they learn better by listening and may benefit from recording lectures; or (3) “kinesthetic learners,” meaning they learn better by doing. Many learning style systems use a similar classification scheme, though many add components, like the VARK system that adds a “reading/writing” element.

While such learning style systems seem to make intuitive sense, this gut-level appeal is not a scientific approach to test the pragmatic utility or the soundness of these classification schemes. When something seems to make sense, i.e., it has “face validity,” it can still be misguided or even incorrect (Carmines 1979). That appears to be the case for the learning style classification systems generally.¹ As with any instrument designed to measure some characteristic of individuals, the instrument is only useful if it: (1) measures what it claims to measure, and (2) measures it reliably. These two elements of scientific research are referred to, respectively, as “validity” and “reliability” (Carmines 1979). Just as you wouldn't measure distance using kilograms (kilograms can't measure distance) and you wouldn't put much trust in a scale that gave you wildly varying numbers when measuring the same object repeatedly, an instrument claiming to measure learning styles or personality that is neither valid nor reliable is worthless.

A number of studies have now tested the reliability and validity of some learning styles measures and find them lacking (Coffield et al. 2004; Henson and Hwang 2002). These instruments do not appear to be reliable measures of learning styles over time. When the instruments are given to the same subjects at multiple time points, they result in different learning style classifications (Henson and Hwang 2002). And various attempts at validating the learning styles, from factor analyses to in-class hypothesis tests, have failed to validate the measures (Kratzig and Arbuthnott 2006). Thus, when researchers have attempted to validate these measures, the measures have fallen short of illustrating either reliability or validity.

Comprehensive reviews of dozens of learning styles measures also find that many of the measures have no research attempting to validate them (Coffield et al. 2004; Beere et al. 2004). In other words, the measures are proposed without scientific evidence supporting either their reliability or validity. Many of these measures are also available for sale, suggesting an ulterior motive for using these measures: making the authors money.

Based on our analysis of the literature examining the reliability and validity of learning styles instruments, we conclude that:

- The measurement instruments for learning styles (e.g., LSI, VAK, etc.) are generally not tested for reliability or validity. When tested, they have been shown not to be reliable or valid.

Myers-Briggs

The Myers-Briggs inventory is claimed to be a measure of discrete personality types based on Jungian psychology (McCrae and Costa 1989). The measure is popular, generally, and also widely used in work places. It is also regularly discussed in textbooks and college courses (Ellis 2006; Nelson 2006). Yet, like the learning styles measurements discussed above, this measurement instrument is lacking in reliability and validity. McCrae and Costa (1989), in an exhaustive review of the research on the

¹ In the interest of full disclosure, there are some studies that find mild support for learning styles; see Lovelace 2005.

Myers-Briggs personality inventory, reveal that its design is flawed (it posits “types” rather than “dimensions”), it is based on questionable psychological theory, and it has not been shown to be either reliable or valid as a measure of personality. McCrae and Costa suggest, instead, that anyone interested in personality measurements look for measurement instruments that focus on the “Big Five” personality traits that can be reliably tested and appear to be valid measures. McCrae and Costa's review of the literature leads us to conclude that:

- The Myers-Briggs personality inventory is not reliable or valid.
- Neither learning styles nor Myers-Briggs inventories are useful measures or indicators. For all intents and purposes, they tell you nothing.

Personal Encounters with Learning Styles

Both authors of this memo have had personal experience dealing with students who are convinced they have particular learning styles. The first author had a student, Adam (name changed), who insisted that he was an auditory learner. Adam was taking a class with a different professor, Dr. Visual (name changed), when he approached the first author about the difficulties he was having in the class. According to Adam, Dr. Visual primarily showed outlines using a projector. Dr. Visual did not discuss the outlines at length but encouraged the students to write down the content of the outlines as the content would resurface on the course tests. Adam insisted that, because he was an auditory learner, Dr. Visual's teaching style was incompatible with his learning style. Adam, rather than adapt his “learning style” to Dr. Visual's teaching style, tried to encourage Dr. Visual to change his teaching style, one that had resulted in positive evaluations over a decades-long teaching career. Dr. Visual suggested, instead, that Adam adapt his learning style and write down what was on the outlines so he could study for the exams. Adam refused and did poorly on the mid-term. Rather than learn from the outcome, Adam blamed the professor for his poor grade, not his refusal to accommodate a teaching strategy he did not care for.

The second author of this memo has found herself in a situation similar to Dr. Visual. The student indicated in the course evaluation, “I do not learn well with power points and it would help to draw more examples on the board and let us write down are [sic] notes”. This suggests that she/he does not feel they should have to adapt to the instructor's teaching style and may not have even tried to adapt.

While these are only personal accounts and not large, random samples, the above examples illustrate one of the serious drawbacks of telling students that they have a specific learning style: The students begin to believe that they can only learn in a specific fashion. The learning styles and the theory behind them do not even suggest that this is true as they generally consider these learning styles as learning “preferences.” Many of the advocates of learning styles discourage people from thinking they cannot learn in other ways (Dunn and Griggs 2000; Kolb 1983), but that is not always the message received by students. Even so, we see this as a serious limitation of teaching students about learning styles or Myers-Briggs personality types: Students can use their “type” as a justification for not working hard in a class or for not getting along with a professor or other students because of incompatibility in teaching/learning styles and personalities.

Another serious limitation of these types of inventories results from when it is alleged that there are specific majors or careers that are particularly well-suited to learning styles or personality types. One textbook (Ellis 2006), in discussing the idea of “multiple intelligences” (a derivative of learning styles), suggests that if you: (1) enjoy being outdoors, and (2) find that important insights occur during times you spend in natural settings, you should consider careers in: recreation supervision, museum curation,

biology, criminology, mechanical repairs, and construction. The second author of this memo teaches in a biology department. She spends very little time in “natural settings” and finds that most of her important insights occur in front of her computer. Based on the suggestions in this book, she would have been discouraged from pursuing her current career choice. Limiting individuals based on unreliable and invalid tests does them a disservice. The above discussion leads us to conclude:

- Using Learning Styles and/or Myers-Briggs as indications of personality types, ways of learning in school (college in particular), ways of interacting with others, or predictors of career paths or college majors results in misguided advice to individuals who are taught to believe these indicators are worthwhile instruments. Discouraging someone from pursuing a career in a field based on invalid and unreliable measurements is a serious disservice to that individual.

Conclusions

- We suggest that any discussion of learning focus on the learning process itself. Discussing mnemonic strategies (Goldman, Meyerson, and Cote 2006; Goll 2004; Johnson 2006) and finding ways students can make what they are studying personally relevant (DeVoge and Varble 1976; Yager 1989) have more evidence supporting their effectiveness and seem as though they would be more beneficial to students in the long run. Talking about ways to facilitate learning without “typing” students into a specific learning classification is a more reasoned approach as it will prevent students from using their alleged “learning style” as a crutch or justification for not performing well in class.
- We also suggest that any discussion of personality focus on the validated measures of personality found by psychologists (e.g., the Big Five; see McCrae and Costa). Discussions of interpersonal interaction should focus on finding ways to get along with people *regardless* of perceived personality differences.

References

- Beere, Jackie et al. 2004. *About Learning: Report of the Learning Working Group*. London: Demos
http://www.demos.co.uk/files/About_learning.pdf.
- Carmines, Edward G. 1979. *Reliability and Validity Assessment*. Beverly Hills, Calif: Sage Publications.
- Coffield, Frank, David Moseley, Elaine Hall, and Kathryn Ecclestone. 2004. *Learning Styles and Pedagogy in post-16 Learning: A Systematic and Critical Review*. London: Learning and Skills Research Centre <http://www.lsda.org.uk/files/PDF/1543.pdf>.
- DeVoge, Susan, and Duane L. Varble. 1976. "The Joint Use of Experiential and Cognitive Learning in the Classroom: Teaching With Personal Relevance." *Teaching of Psychology* 3:168-71.
- Dunn, Rita, and Shirley A. Griggs. 2000. *Practical Approaches to Using Learning Styles in Higher Education*. Bergin & Garvey.
- Dunn, Rita Stafford. 1989. *Learning style inventory (LSI): An inventory for the identification of how individuals in grades 3 through 12 prefer to learn*. Price Systems.
- Ellis, Dave. 2006. *Becoming A Master Student: Concise: Text*. 11th ed. Houghton Mifflin Company.
- Goldman, Susan R., Peter M. Meyerson, and Nathalie Cote. 2006. "Poetry as a Mnemonic Prompt in Children's Stories." *Reading Psychology* 27:345-376.
- Goll, Paulette S. 2004. "Mnemonic Strategies: Creating Schemata for Learning Enhancement." *Education* 125:306.
- Henson, Robin K., and Dae-Yeop Hwang. 2002. "Variability and Prediction of Measurement Error in Kolb's Learning Style Inventory Scores a Reliability Generalization Study." *Educational and Psychological Measurement* 62:712-727.
- Johnson, Genevieve Marie. 2006. "Online Study Groups: Reciprocal Peer Questioning versus Mnemonic Devices." *Journal of Educational Computing Research* 35:83-96.
- Kolb, David A. 1976. *Learning style inventory: Self-scoring test and interpretation booklet*. McBer.

- Kolb, David A. 1983. *Experiential Learning: Experience as the Source of Learning and Development*. 1st ed. FT Press.
- Kratzig, Gregory P., and Katherine D. Arbuthnott. 2006. "Perceptual Learning Style and Learning Proficiency: A Test of the Hypothesis." *Journal of Educational Psychology* 98:238-246.
- Lovelace, Maryann Kiely. 2005. "Meta-Analysis of Experimental Research Based on the Dunn and Dunn Model.." *Journal of Educational Research* 98:176.
- McCrae, R R, and P T Costa. 1989. "Reinterpreting the Myers-Briggs Type Indicator from the perspective of the five-factor model of personality." *Journal of Personality* 57:17-40.
- Nelson, Debra L. 2006. *Organizational Behavior: Foundations, Realities, and Challenges*. 5th ed. Mason, Ohio: Thomson/South-Western.
- Yager, Robert E. 1989. "A Rationale for Using Personal Relevance as a Science Curriculum Focus in Schools.." *School Science and Mathematics* 89:144-56.