

DIFFERENT STROKES FOR DIFFERENT FOLKS?

A Critique of Learning Styles

BY STEVEN A. STAHL

I WORK WITH a lot of different schools and listen to a lot of teachers talk. Nowhere have I seen a greater conflict between “craft knowledge” or what teachers know (or at least think they know) and “academic knowledge” or what researchers know (or at least think they know) than in the area of learning styles. Over the years, my experience has told me to trust teachers; it has also taught me that teachers’ craft knowledge is generally on target. I don’t mean to say that teachers are always right, but they have learned a great deal from their thousands of observations of children learning in classrooms. So, when teachers talk about the need to take into account children’s learning styles when teaching, and researchers roll their eyes at the sound of the term “learning styles,” there is more to it than meets the eye.

The whole notion seems fairly intuitive. People are different. Certainly different people might learn differently from each other. It makes sense. Consider the following from the Web site of the National Reading Styles Institute, a major proponent of the application of learning styles to the teaching of reading:

Steven A. Stahl is professor of reading education at the University of Georgia and co-director of the Center for Improvement of Early Reading Achievement. His research interests are in beginning reading and vocabulary instruction.

We all have personal styles that influence the way we work, play, and make decisions. Some people are very analytical, and they think in a logical, sequential way. Some students are visual or auditory learners; they learn best by seeing or hearing. These students are likely to conform well to traditional methods of study.

Some people (we call them “global learners”) need an idea of the whole picture before they can understand it, while “analytic learners” proceed more easily from the parts to the whole. Global learners also tend to learn best when they can touch what they are learning or move around while they learn. We call these styles of learning “tactile” and “kinesthetic.” In a strictly traditional classroom, these students are often a problem for the teacher. She has trouble keeping them still or quiet. They seem unable to learn to read. (<http://www.nrsi.com/about.html>)

This all seems reasonable, but it isn’t.

Research and Learning Styles

The reason researchers roll their eyes at learning styles is the utter failure to find that assessing children’s learning styles and matching to instructional methods has any effect on their learning. The area with the most research has been the global and analytic styles referred to in the NRSI blurb above. Over the past 30 years, the names of these styles have changed—from “visual” to “global” and from “auditory” to “analytic”—but the research results have not changed.

In 1978, Tarver and Dawson reviewed 15 studies that matched visual learners to sight word approaches and auditory learners to phonics. Thirteen of the studies failed to find an effect, and the two that found the effect used unusual methodology. They concluded:

Modality preference has not been demonstrated to interact significantly with the method of teaching reading.¹

One year later, Arter and Jenkins reviewed 14 studies (some of these are overlapping), all of which failed to find that matching children to reading methods by preferred modalities did any good. They concluded:

[The assumption that one can improve instruction by matching materials to children's modality strengths] appears to lack even minimal empirical support.²

Kampwirth and Bates, in 1980, found 24 studies that looked at this issue. Again, they concluded:

Matching children's modality strengths to reading materials has not been found to be effective.³

In 1987, Kavale and Forness reviewed 39 studies, using a meta-analysis technique that would be more sensitive to these effects. They found that matching children by reading styles had nearly no effect on achievement. They concluded:

Although the presumption of matching instructional strategies to individual modality preferences has great intuitive appeal, little empirical support for this proposition was found.... Neither modality testing nor modality teaching were shown to be [effective].⁴

A fifth review, in 1992, by Snider found difficulties in reliably assessing learning styles and a lack of convincing research that such assessment leads to improvement in reading.

Recognition of individuals' strengths and weaknesses is good practice; using this information, however, to categorize children and prescribe methods can be detrimental to low-performing students. Although the idea of reading style is superficially appealing, critical examination should cause educators to be skeptical of this current educational fad.⁵

These five research reviews, all published in well-regarded journals, found the same thing: One cannot reliably measure children's reading styles and even if one could, matching children to reading programs by learning styles does not improve their learning. In other words, it is difficult to accurately identify children who are "global" and "analytic." So-called global children do not do better in whole language programs than they would in more phonics-based programs. And so-called analytic children do not do better in phonics programs than they do in whole language programs. In short, time after time, this notion of reading styles does not work.

This is an area that has been well researched. Many other approaches to matching teaching approaches to learning styles have not been well researched, if at all. I could not find studies in refereed journals, for example, documenting whether the use of Howard Gardner's Multiple Intelligences Model⁶ improved instruction. This does not mean, of course, that the use of the model does not improve achievement, only that I could not find studies validating its use. The same is true of other learning style models.

One cannot prove a negative. Even if all of these studies failed to find that matching children by learning styles

helps them read better, it is always possible that another study or another measure or another something will find that matching children to their preferred learning modality will produce results. But in the meantime, we have other things that we *know* will improve children's reading achievement. We should look elsewhere for solutions to reading problems.

Yet, the notion of reading styles (or learning styles) lingers on. This is true not only in my talks with teachers, but also in the literature that teachers read. The most recent issue of *Educational Leadership* included, as part of a themed issue on innovations, several articles on learning styles. *Phi Delta Kappan* also regularly contains articles on learning styles, as do other publications intended for teachers.

Research into Learning Styles

Among others, Marie Carbo claims that her learning styles work is based on research. [I discuss Carbo because she publishes extensively on her model and is very prominent on the workshop circuit. In the references for this article, I cite a few examples of her numerous writings on the topic.] But given the overwhelmingly negative findings in the published research, I wondered what she was citing, and about a decade ago, I thought it would be interesting to take a look. Reviewing her articles, I found that out of 17 studies she had cited, only one was published.⁸ Fifteen were doctoral dissertations and 13 of these came out of one university—St. John's University in New York, Carbo's alma mater. None of these had been in a peer-refereed journal. When I looked closely at the dissertations and other materials, I found that 13 of the 17 studies that supposedly support her claim had to do with learning styles based on something other than modality. In 1997, I found 11 additional citations. None of these was published, eight were dissertations, and six of these came from St. John's. In short, the research cited would not cause anyone to change his or her mind about learning styles.

What Do People Mean by Learning Styles?

Modality refers to one of the main avenues of sensation such as vision and hearing. I have only talked about modality-based reading styles because these are both the best researched and the most heavily promoted. The National Reading Styles Institute claims that it has worked with "over 150,000 teachers," and its advertisements seem to be everywhere. Furthermore, these notions of "visual" and "auditory" learners or "global" and "analytic" learners have been around for a long time and have found their way into a number of different programs, not just the NRSI programs.

There are other ways of looking at learning styles. People have proposed that children vary not only in perceptual styles, but on a host of different dimensions. To name a few, people have suggested that children are either two-dimensional/three-dimensional, simultaneous/sequential, connecting/compartmentalizing, inventing/reproducing, reflective/impulsive, field dependent/field independent, and so on.

Some of these are *learning preferences*, or how an individual chooses to work. These might include whether a person prefers to work in silence or with music playing, in bright light or dim light, with a partner or alone, in a warm room or a cool room, etc.

Some of these are *cognitive styles*, such as whether a person tends to reflect before making a choice or makes it impulsively, or whether a person tends to focus on details or sees the big picture.

Some of these are *personality types*, such as whether a person is introverted or extroverted.

Some of these are *aptitudes*, like many of Howard Gardner's multiple intelligences. Gardner suggests that people vary along at least seven different dimensions—*linguistic* or the ability to use language, *logico-mathematical* or the ability to use reasoning especially in mathematics, *spatial* or the ability to use images or pictures, *bodily-kinesthetic* or the ability to control movement, *musical*, *interpersonal* or the ability to work with people, and *intrapersonal* or the thinking done inside oneself. The last two are more like personality types, rather than aptitudes or even learning styles. The others are Gardner's attempt to expand the notion of what we think is intelligent behavior to people who are skilled in music, or dance, or even in interpersonal relations. In contrast to the traditional vision of learning styles as either/or categories (either a person is visual or he or she is auditory), multiple intelligences are put forth by Gardner as separate abilities. A child may be strong in a few of these areas, or none of these areas.

What is a teacher to do with all this? If there are children who prefer to work with music, then the teacher might either provide Walkmans for those who prefer music or play music openly and provide earplugs for those who don't. If there are children who prefer to work in bright light, the teacher might seat those children over by the window. Children who like to snack while reading can be allowed to eat during class (healthy foods, of course). It would be easy to see how accommodating all of these preferences in a class could lead to chaos. How would a teacher lecture, give assignments, or even call to order a class in which a sizable proportion of the students was wearing earplugs? Or how does one regulate the temperature so part of the room is warm and part cool?

Others have used learning styles theory as a way of making sure that all the needs of diverse learners are being met. Marguerite Radenich used Gardner's model to examine literature study guides.⁹ Her ideal was one that incorporated all of these ways of knowing into an integrated whole to be used to study adolescent literature. Thus, Gardner's model was used here to create more multidimensional instruction. This is very different from using these different styles to segregate children into groups where they would receive fairly one-dimensional instruction.

Thoughtful educators have tried to make this work, and perhaps it is workable, but trying to meet all of the preferences of a group of children would seem to take energy that would be better spent on other things. This is especially true since no one has proven that it works.

Learning Styles and Fortune Telling

Why does the notion of "learning styles" have such enduring popularity—despite the lack of supporting evidence? I believe that this phenomenon has a lot in common with fortune telling.

You go to see a fortune teller at a circus. She looks you over and makes some quick judgments—how young or old you are, how nicely you are dressed, whether you appear anxious or sad or lonely—and based on these judgments, tells your fortune. The fortune she tells may be full of simple and ambiguous statements—"you will be successful at your next venture," "you will be lucky at love," or may be more complex—"you are successful at home, but someone is jealous; make sure you watch yourself." Either way, the statements are specific enough so that they sound predictive, but ambiguous enough that they could apply to a number of situations.

When we read the statements on a Learning Style Inventory, they sound enough like us that we have a flash of recognition. These inventories typically consist of a series of forced choices, such as these from Marie Carbo's *Reading Style Inventory, Intermediate*, 1995.¹⁰

- A) I always like to be told exactly how I should do my reading work.
- B) Sometimes I like to be told exactly how I should do my reading work.
- C) I like to decide how to do my reading work by myself.

Or

- A) I like to read in the morning.
- B) I don't like to read in the morning.
- A) I like to read after lunch.
- B) I don't like to read after lunch.
- A) I like to read at night.
- B) I don't like to read at night.

Or

- A) I read best where it's quiet with no music playing.
- B) I read best where there is music playing.
- C) I read about the same where it's quiet or where there is music playing.

Since all of us have some preferences (my experience is that adults have clear preferences about music during reading, especially), these items tend to ring true. Like the fortunes told by the fortune teller, these statements at first light seem specific enough to capture real distinctions among people. But the problem with choices like these is that people tend to make the same choices. Nearly everybody would prefer a demonstration in science class to an uninterrupted lecture. This does not mean that such individuals have a visual style, but that good science teaching involves demonstrations. Similarly, nearly everybody would agree that one learns more about playing tennis from playing than from watching someone else play. Again, this does not mean that people are tactile/kinesesthetic, but that this is how one learns to play sports. Many of these "learning styles" are not really choices, since common sense would suggest that there would not be much variance among people. In the class sample provided with the Reading Style Inventory above, for example, 96 percent of the fifth-graders assessed preferred quiet to work-

ing while other people were talking, 88 percent preferred quiet to music, 79 percent picked at least two times of day when they preferred to work, 71 percent had no preference about temperature, and so on. Virtually all of the questions had one answer preferred by a majority of the students.

The questions are just specific enough to sound like they mean something, but vague enough to allow different interpretations. For example, does “music” refer to Mozart or Rap? Obviously, one’s choices would be different for different types of music. A more serious question would arise over the “teacher direction” item. Doesn’t the amount of teacher direction needed depend on the difficulty of the assignment? There are some assignments that are self-evident and do not need much teacher direction, but when work gets complex, students need more direction. This is not a matter of preference.

The other major problem with these inventories is that there are no questions about a child’s reading ability. So children with reading problems are given the same measure as children who are doing well in reading. This has two effects. First, there is a bias on some items for children with different abilities. Consider these two items, also from the Carbo inventory:

- A) It’s easy for me to remember rules about sounding out words.
- B) It’s hard for me to remember rules about sounding out words.

Or

- A) When I write words, I sometimes mix up the letters.
- B) When I write words, I almost never mix up the letters.

Children with reading problems are more likely to answer that they do not remember phonics rules and that they sometimes mix up the letters. According to the learning styles research reports, such children are likely to be considered as having a global (or visual) preference.¹¹ Actually, this may not be a preference at all, but a reflection of the child’s current level of reading ability. The potential for harm occurs when children with reading problems are classified as “global” (visual) learners and thereby miss out on important instruction in decoding, or are classified as “analytic” (auditory) learners and miss out on opportunities to practice reading in connected text.

Not including information about reading ability also leads to some strange prescriptions. Adults attending learning styles workshops often get prescriptions for beginning reading instruction methods, such as the language experience approach or phonics/linguistic approaches, certainly not needed by competent readers. And for children, too, some of the approaches may be inappropriate. The language experience approach, for example, is best suited for children at the emergent literacy stage, when they need to learn about basic print concepts, one-to-one matching, letter identification, and so on.¹² For a second-grader, or even a newly literate adult, language experience may be appropriate (if they still have not mastered basic print concepts) or highly inappropriate (if they are already reading fluently). It depends on the readers’ skill, not their learning styles.

Reliability

If you are to use a test, even an inventory like the one cited above, it should be reliable. If a test is reliable, that means you are going to get the same (or close to the same) results every time you administer it. If a test is 100 percent reliable (or has a reliability coefficient of 1.0), then a person will score exactly the same on Thursday as on Tuesday. Perfection is tough to come by, so we generally want a reliability coefficient to be .90 or higher.¹³ If a test is not reliable, or trustworthy, then it is difficult to believe the results. This is a problem, not only with inventories, but with any measure that asks subjects to report about themselves.

Reliabilities of these measures are relatively low. The self-reported reliabilities of Carbo’s Reading Style Inventory and Dunn and Dunn’s Learning Style Inventories are moderate, especially for a measure of this kind—in the neighborhood of the .60s and the .70s. Similar reliabilities are reported for the Myers-Briggs Inventory, another learning styles assessment.¹⁴ These are lower than one would want for a diagnostic measure. And, these scores are inflated, since for many items there is generally one answer that nearly everybody chooses. This would tend to make the reliabilities higher.

The vagueness in the items may tend to make the reliabilities low. Again, how a child interprets each item will influence how it is answered, as with the “teacher direction” and “music” examples discussed earlier.

Test-retest reliabilities are particularly important for a measure of learning styles. These moderate reliabilities could be interpreted in two ways. The test itself may not be a reliable measure of what it is supposed to measure—that is, a person has a stable learning style, but the test is not getting at it. If the test is not reliable, then the information it gives is not trustworthy.

The other possibility is that learning styles may change, from month to month, or even week to week. This is also problematic. If we are talking about matching a person to a situation using this instrument, this is a relatively long-term (semester or academic year) matching. If a person’s style changes, then one either must measure learning styles frequently, or allow for more flexible assignments.

How Reading Develops

The Learning Style model assumes that different children need different approaches to learn to read. Children are different. They come to us with different personalities, preferences, ways of doing things. However, the research so far shows that this has little to do with how successful they will be as readers and writers. Children also come to us with different amounts of exposure to written text, with different skills and abilities, with different exposure to oral language. The research shows that these differences *are* important.

Rather than different methods being appropriate for different children, we ought to think about different methods being appropriate for children at different stages in their development. Children differ in their phonemic abilities, in their ability to recognize words automatically, in their ability to comprehend and learn from text, and in

their motivation and appreciation of literature.¹⁵ Different methods are appropriate for different goals. For example, approaches that involve the children in reading books of their own choice are important to develop motivated readers.¹⁶ But whole language approaches, which rely largely on children to choose the materials they read, tend not to be as effective as more teacher-directed approaches for developing children's word recognition or comprehension.¹⁷

A language experience approach may be appropriate to help a kindergarten child learn basic print concepts. The child may learn some words using visual cues, such as might be taught through a whole word method. With some degree of phonological awareness, the child is ready to learn letters and sounds, as through a phonic approach. Learning about letters and sounds, in combination with practice with increasingly challenging texts, will develop children's ability to use phonetic cues in reading, and to cross-check using context. With additional practice in wide reading, children will develop fluent and automatic word recognition. None of this has anything to do with learning styles; it has to do with the children's current abilities and the demands of the task they have to master next.

What Do Teachers Get out of Learning Styles Workshops?

I have interviewed a number of teachers who have attended learning styles workshops. These were meetings of 200 to 300 teachers and principals, who paid \$129 or so to attend a one-day workshop or up to \$500 to attend a longer conference. They have found them to be pleasant experiences, with professional presenters. The teachers also feel that they learned something from the workshops. After I pressed them, what it seemed that they learned is a wide variety of reading methods, a respect for individual differences among children, and a sense of possibilities of how to teach reading. This is no small thing. However, the same information, and much more, can be gotten from a graduate class in the teaching of reading.

These teachers have another thing in common—after one year, they had all stopped trying to match children by learning styles. □

REFERENCES

- ¹Tarver, Sara, and M.M. Dawson. 1978. Modality preference and the teaching of reading. *Journal of Learning Disabilities* 11:17-29.
- ²Arter, J.A., and Joseph A. Jenkins. 1979. Differential diagnosis-prescriptive teaching: A critical appraisal. *Review of Educational Research* 49:517-555.
- ³Kampwirth, T.J., and M. Bates. 1980. Modality preference and teaching method. A review of the research. *Academic Therapy* 15:597-605.
- ⁴Kavale, Kenneth, A., and Steven R. Forness. 1987. Substance over style: Assessing the efficacy of modality testing and teaching. *Exceptional Children* 54:228-239.
- ⁵Snider, Vicki. E. 1992. Learning styles and learning to read: A critique. *Remedial and Special Education* 13:6-18.
- ⁶Gardner, Howard. 1993. *Frames of mind: The theory of multiple intelligences*. New York: Basic Books.
- ⁷For example, Carbo, Marie. 1997. Reading styles times twenty. *Educational Leadership* 54 (6):38-42; Carbo, Marie, Rita Dunn, and Kenneth Dunn. 1986. *Teaching students to read through their individual learning styles*. Englewood Cliffs, N.J.: Prentice-Hall.
- ⁸See Stahl, Steven A. 1988. Is there evidence to support matching reading styles and initial reading methods? A reply to Carbo. *Phi Delta Kappan* 70 (4):317-322.
- ⁹Radenich, Marguerite Cogorno. 1997. Separating the wheat from the chaff in middle school literature study guides. *Journal of Adolescent and Adult Literacy* 41 (1):46-57.
- ¹⁰All examples are from Carbo, Marie. 1995. *Reading Style Inventory Intermediate (RSI-I)*: Author.
- ¹¹Carbo, M. 1988. Debunking the great phonics myth. *Phi Delta Kappan* 70:226-240.
- ¹²Stahl, Steven A., and Patricia D. Miller. 1989. Whole language and language experience approaches for beginning reading: A quantitative research synthesis. *Review of Educational Research* 59 (1):87-116.
- ¹³Harris, Albert J., and Edward Sipay. 1990. *How to increase reading ability*. 10th ed. White Plains, N.Y.: Longman.
- ¹⁴Pittenger, David, J. 1993. The utility of the Myers-Briggs Type Indicator. *Review of Educational Research* 63:467-488.
- ¹⁵Stahl, Steven A. 1998. Understanding shifts in reading and its instruction. *Peabody Journal of Education* 73(3-4): 31-67.
- ¹⁶Morrow, Lesley M., and Diane Tracey. 1998. Motivating contexts for young children's literacy development: Implications for word recognition development. In *Word recognition in beginning literacy*, edited by J. Metsala and L. Ehri. Mahwah, N.J.: Erlbaum; Turner, Julianne, and Scott G. Paris. 1995. How literacy tasks influence children's motivation for literacy. *The Reading Teacher* 48:662-673.
- ¹⁷Stahl and Miller, op cit., Stahl, Steven A., C. William Suttles, and Joan R. Pagnucco. 1996. The effects of traditional and process literacy instruction on first-graders' reading and writing achievement and orientation toward reading. *Journal of Educational Research*. 89:131-144.