UNDERSTANDING LEARNING STYLES:
AN ELEPHANT-SIZED TASK

By Sally Lam-Phoon

For the past four decades, considerable research has been dedicated to one question: How do students learn? Much progress has been made in understanding brain functioning, which has given us a clearer picture of how learning occurs. Another area of intense research has been learning styles. While a large number of theoretical constructs have been proposed and tested, much confusion still persists.

The many attempts to understand this complex subject resemble the story of the blind Hindustani men and the elephant. Just as each man felt one small part of the elephant and shared his perception of what an elephant was like, just so learning-style proponents are trying to understand the total learning process by focusing on very limited areas in a complex maze of possibilities. No one researcher is absolutely correct or completely wrong. Kernels of truth are revealed by each exploration, but no single study presents a complete picture.

This article will discuss issues related to learning styles so teachers both understand what is known about the learning process as well as what still remains a mystery.

An Elusive Definition

Much confusion has resulted as researchers attempted to define the various learning
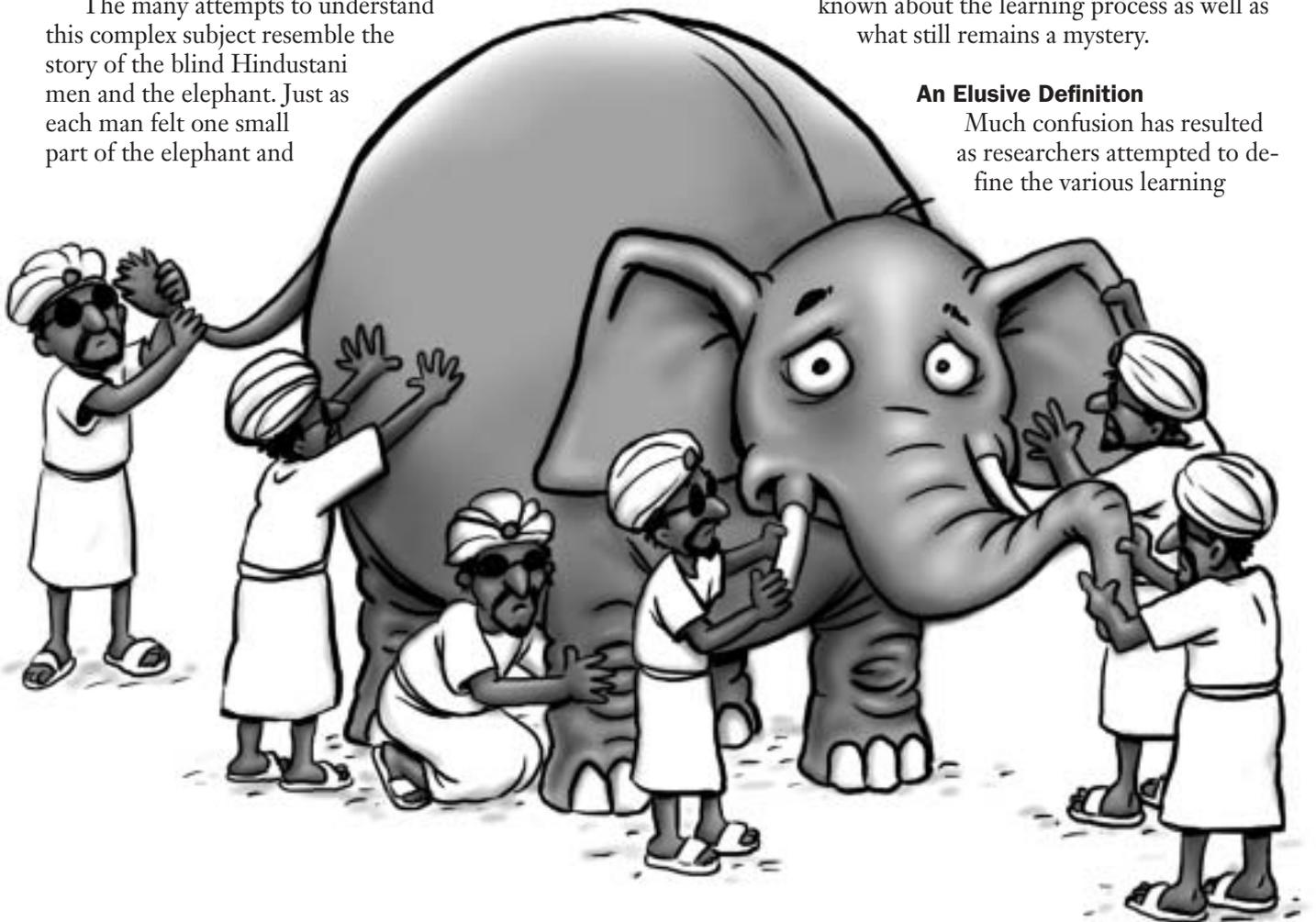
styles. Rayner and Riding[1] have traced the evolution of the research. In the 1940s, researchers studied cognitive elements such as seeing things as a whole or in detail (wholistic versus analytic); concrete versus abstract; relating to words or to pictures (verbal versus visual); and field independence versus field dependence. Other research studied whether people handled ideas in a random or sequential manner; the rate at which an individual makes decisions (impulsivity versus reflectivity); convergent versus divergent thinking; wholistic versus serialist thinking; and intuitive versus analytic reasoning.

Four decades later, Dunn, Dunn, and Price attempted to build a more comprehensive model that included 23 elements in five basic strands (the environmental, emotional, sociological, physiological and psychological processing preferences). Certain learning "preferences" related closely to personality styles, so researchers developed models relating to personality factors, drawing upon the extrovert-introvert and sensing-intuitive definitions of the Myers-Briggs Type Indicator.[2] Proponents of this approach categorized learners as extroverts (those who relate naturally to the external world and people) or introverts (those who enjoy internalizing and reflecting). They concluded that, in information processing, people either use input from their five senses (sensing) or perceive patterns gathered through experience (intuition).

Still other researchers considered learning style as a process or a sequence. David Kolb[3] developed a simple 12-question instrument to assess learning style. His theory suggests a sequence that begins with concrete experience, moves to reflective observation and abstract conceptualization, and finally to active experimentation. For a complete learning experience, students must complete all four stages. However, many students will never progress

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beyond the first stage without proper guidance and encouragement.

This theory was further developed into a framework that used four combinations of the above dimensions, resulting in four quadrants to encompass variations in learning style:

1. Accommodator—combines active experimentation and concrete experience.

2. Diverger—combines concrete experience and reflective observation.

3. Assimilator—combines reflective observation and abstract conceptualization.

4. Converger—combines abstract conceptualization and active experimentation.[4]

Kolb's model has been used extensively in the United States during the past two decades. It influenced Honey and Mumford's Learning Styles Questionnaire, which deals with management of the workplace. The LSQ classifies workers into four types of learners—activists, theorists, pragmatists, and reflectors.[5]

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Rayner and Riding also note Curry's attempt to integrate the concepts of cognitive learning style/preference by using the analogy of an onion. At the core of the onion is the personality type; the second layer is the preferred information processing models, and the outermost layer is instructional-preference models.[6]

However, despite the intense, ongoing search to clearly define learning styles, there are many jigsaw pieces that do not seem to readily fit together to form an integrated picture.

Issues

The basic reason for researching learning styles is to enhance student learning by recognizing individual differences. In the classroom, two viewpoints have to be considered—that of the teacher and that of the student. Is the teacher a manager who seeks to accomplish specific objectives as quickly and as efficiently as possible, or are the learners responsible for assembling their own knowledge structures, with the teacher only as a facilitator?

When the teacher takes center stage in the planning and control of instruction, the Dunn and Dunn model of "matching" the teacher's style to the students' styles to facilitate learning seems to make sense. Numerous research studies have shown that more often than not, teachers' styles conflict with students' preferred styles. Bass and Geary[7] cite Cooper and Miller, Booth and Winzar, Geary and Roony, and Schroeder,[8] all of whom concur that the majority of college students (75 percent) prefer the sensing learning pattern, in which learners prefer to focus on the real and tangible, using their senses to observe and remember. Ideas and theories have to be approached through practical applications that they can see and feel. This agrees with data from the Center for the Application of Psychological Type in Gainesville, Florida.

Schroeder's research on faculty and students at a large midwestern

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U.S. university revealed that more than 75 percent of the faculty were IN (introverted/intuitive), in contrast with the majority of the students, who were ES (extroverted/sensing).[9] Also, Raschick et al[10] cited research conducted by Kruzich, Friesen, and Van Soest in 1986, which found that students scored highest in concrete experience, while faculty scored highest in abstract conceptualization (using Kolb's Learning Style Inventory). Faculty often create classroom environments that are rewarding to them personally but prove to be extremely frustrating for students.

Rita Dunn, a strong proponent of matching teacher and student styles, thinks that learning styles will become an integral part of lesson planning and classroom instruction within the next decade.[11] In their experiments with learning styles, Dunn, Dunn, and Price have helped set up special schools where teachers use resources and methods that best match each child's learning prefer-

ence. Students are taught to recognize and rely on their personal learning-style strengths and to teach themselves and others using those strengths. These researchers report significantly higher test scores and/or grade-point averages for students whose teachers changed from traditional teaching to learning-style teaching at all levels from elementary through college.[12] However, this claim is questioned by Vicki Snider,[13] who cautions against being overly enthusiastic about matching specific instructional methods to certain learning styles. Her study into learning styles reveals that matching teacher and learner styles has produced inconclusive results.

The question is this: Should we design courses and educational environments that cater to students' individual learning styles, or should we create environments that require them to learn in ways that are different from their existing strengths in order to help them develop the cognitive skills to handle different types of learning materials?

Teachers must exercise caution in trying to create an ideal learning environment. In catering to each individual style, rather than helping students to be aware that they must operate in different styles, depending on the nature of the subject, we may be limiting their potential for learning.

While learners may function well in a controlled environment, such

Teaching and Learning Styles

Teaching styles are approaches used by educators in lesson delivery, while *learning styles* are different methods that students use in assimilating new information. When the teacher and learner use complementary approaches, learning takes place more effectively. Although a wide variety of terms have been used to describe teaching and learning styles, some basic descriptions include *visual* (use of pictures or imagery), *auditory* (through listening), *tactile* (through the sense of touch and feel), and *kinesthetic* (through an experience or activity). Other definitions attempt to describe the way teachers present new information and how learners process new knowledge. A few examples include abstract versus concrete, impulsive versus reflective, analytical versus non-analytical, wholistic versus analytic, and sequential versus random.

"hothousing" may prove detrimental in the context of their total lives. The stark truth is that once they leave the classroom, young people cannot expect to spend the rest of their lives in sterile environments that have been shaped to suit their learning styles.

Students may learn more effectively if they become alert to how they perceive and process the material to be learned. If teachers regularly vary their teaching and discuss what each student finds most compelling and challenging, they can help students become more aware of how to learn most effectively.[14]

In the Information Age, facts become outdated all too quickly, which only emphasizes the need for a commitment to lifelong learning. To achieve this goal, "helping students learn how to learn may be the most important lesson faculty can teach." Therefore, getting students to take responsibility for their own learning, with teachers acting as facilitators, is likely to be the most beneficial approach in the long run.

Since the U.S. Department of Labor has identified the ability to know how to learn as the most fundamental skill for the 21st century,

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McClanaghan points out that self-awareness and self-monitoring are the essential skills for tomorrow's workers and the organizations that will fuel the global economy.[15]

Teachers seeking to assess learning styles should know that lack of reliability is a serious problem for many of the instruments on the market, such as Price, Dunn, and Dunn's Productivity Environmental Preference Survey (PEPS) and Biggs' Study Process Questionnaire (SPQ).[16] The PEPS scale reliabilities do not support their developers' claims for stable learning style elements resistant to change. The SPQ scale reliabilities, though higher, provide only modest evidence of long-term consistency among the three types of study approaches—"surface, deep and achieving."[17]

Furthermore, most of the learning-style instruments are time-consuming, difficult to score, and impractical for classroom use. Burns, Johnson, and Gable[18] cite Curry,[19] who warned about "rushing prematurely into print and marketing with very early and preliminary indications of factor loadings based on one data set." Rayner and Riding[20] wrote that commentators have questioned "the proliferation of style constructs and measures . . . while offering little or no psychometric rigour."[21]

In light of the questionable value of most learning-style instruments, educators should be careful about categorizing learners and prescribing teaching/learning methods based solely on such tests.

Lederman and Niess note that the volumes of research on learning styles have had little impact in the public school setting. In fact, over the years, there has been a decline in the interest in learning styles and preferences as shown in the indexes of the first, second, and third *Handbooks of Research on Teaching.* They propose instead that students be helped to "develop adaptive skills" rather than teachers having to change their instructional style to

match students' learning preferences.[22]

This proposal gains further support from the fact that as students advance and grow, their learning styles change. Kirchoff, who worked with high achievers, concluded that modality strength is not fixed but temporal; it changes over time "with high academic achievers demonstrating an integration of modalities at an earlier age."[23]

However, although learning-style measurements are far from perfect, they still can help to increase awareness and understanding as *individual* students approach a learning situation. They can be used as a springboard for exploration of other learning styles, as students may need assistance to develop a repertoire of styles to deal with different kinds of knowledge.

"Empowering students to adapt is a more proactive and potentially effective instructional approach; . . . learning strategies and metacognition are viable areas to consider . . . Learning with style is critically more important than learning styles."[24]

Conclusion

In using learning-style instruments in the classroom, keep in mind the following principles:

1. Because of the inconsistency of research results, resist categorizing learners by gender, ethnicity, socioeconomic levels, or race. Do not assume that these groups will have similar learning styles. Be especially wary of drawing conclusions based on a single study.

2. Remember that diagnostic tools are imperfect—they provide only an educated guess about each student's learning preference *at a specific time.* Therefore, use them with caution, since students' learning styles can change during the maturation process. As students gain more insight into how they learn, they should become more adept at using varying styles to deal with different types of knowledge in a variety of situations.

3. Use your knowledge of learning styles to help individual students and to develop a variety of teaching methodologies and approaches.

4. Become a classroom facilitator and mentor, offering insights into the learning process that help students become more aware of their own learning styles and gradually take ownership for learning. Do all you can to encourage students to embrace the goal of lifelong learning.

5. Finally, nurture a healthy respect for diversity and try to view each student wholistically. If a child is not progressing despite your best attempts to understand his or her learning style and adapt the content, then perhaps you need to investigate other areas. Has the child suffered some brain damage at birth or during childhood? Is he or she developmentally ready for the schoolwork? Is the child buckling under the strain of home problems, such as marital distress, parental anxiety or depression, or tension between parent and child? Often, other concerns will have to be resolved before the child can master the assigned material.

Much remains to be discovered about the human brain and how it makes the connections that result in learning. Teachers must seek to keep abreast of the research and to teach in ways that most effectively foster learning. This may call for a paradigm shift; it may call for trying new strategies; it may mean falling flat on our faces time and time again before we can cry, "Eureka." Nonetheless, we must persevere in our quest to mentor students as they try to make sense of new and exciting concepts.

Comprehending how students learn is a gigantic task that resembles the blind Hindustani men trying to understand an elephant. Although we may feel confounded by the large

body of inconclusive research and frustrated as we attempt to achieve the right formulas for learning, we can be secure in the fact that God will be our guide. He has promised us wisdom, knowledge, and skill if we make diligent efforts in the classroom. Ellen White wrote: "God can give you skill in all your learning. He can help you to adapt yourselves to the line of study you shall take up. Place yourselves in right relation to God. Make this your first interest . . . ."[25] This promise will be especially precious for the teacher who struggles to individualize learning in order to reach each student. ✐

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NOTES AND REFERENCES

1. Stephen Rayner and Richard J. Riding, "Towards a Categorisation of Cognitive Styles and Learning Styles," *Educational Psychologist* 17:1, 2 (March-June 1997), pp. 5-28.

2. *Extroversion-Introversion.* These terms used in the Myers-Briggs Type Indicator (MBTI) refer to opposite ways of relating to people and activities. Extroverts prefer to draw their energy from their external environment, interacting with others and taking action. They are sociable and expressive, working through ideas by discussing them. Introverts, on the other hand, are drawn to their inner world of ideas and experiences. They prefer to draw energy from self-reflection either in private or in interaction with a few close friends.

Sensing-Intuition (as used in the MBTI) describes how people prefer to gather information.

People who are "sensing" employ their senses to observe what is going on around them. They focus on what is real and tend to be factual, concrete, and observant about specifics. They take time to arrive at conclusions, attempting to understand ideas and theories through practical applications. Conversely, those who are "intuitive" prefer to focus on the big picture, seeing patterns and possibilities. Such people rely on their "sixth sense," and are often imaginative and verbally creative, drawing conclusions by following their hunches (Isabel Briggs Myers, *Introduction to Type* [Palo Alto, Calif.: Consulting Psychologists Press, Inc., 1998], p. 6).

3. D. M. Smith and D. A. Kolb, *User's Guide for the Learning-Style Inventory: A Manual for Teachers and Trainers* (Escondido, Calif.: Hay/McBer, 1986).

4. D. J. Hargreaves, "How Undergraduate Students Learn," *European Journal of Engineering Education* 21:4 (December 1996), p. 425.

5. Ibid.

6. Rayner and Riding.

7. George M. Bass, Jr., and William T. Geary (co-editors), "Education Research Abstracts," *Issues in Accounting Education* 11:1 (Spring 1996), pp. 239-244.

8. Charles C. Schroeder, "New Students—New Learning Styles," *Change* (September/October 1993), accessed at http://www.virtualschool.edu/mon.

9. Ibid.

10. Michael Raschick, Donald E. Maypole, and Priscilla A. Day, "Improving Field Education Through Kolb Learning Theory," *Journal of Social Work Education* 34:1 (Winter 1998), p. 31.

11. Michael F. Shaughnessy, "An Interview With Rita Dunn About Learning Styles." In L. Abbeduto, ed., *Taking Sides: Clashing Views on Controversial Issues in Educational Psychology* (Guildford, Conn.: McGraw-Hill, 1998), pp. 90-97.

12. Ibid.

13. Vicki E. Snider, "What We Know About Learning Styles From Research in Special Education," *Educational Leadership* 48:2 (October 1990), p. 53.

14. Mary Ellen McClanaghan, "A Strategy for Helping Students Learn How to Learn," *Education* 120:3 (Spring 2000), p. 479.

15. Ibid., p. 485.

16. Rosalind Murray-Harvey, "Learning Styles and Approaches to Learning: Distinguishing Between Concepts and Instruments," *British Journal of Educational Psychology* 64:3 (November 1994), pp. 373-388.

17. Ibid.

18. Deborah E. Burns, Scott E. Johnson, and Robert K. Gable, "Can We Generalize About the Learning Style Characteristics of High Academic Achievers?" *Roeper Review* 20:4 (May/June 1998), pp. 276-281.

19. Lynn Curry, "A Critique of the Research on Learning Styles," *Educational Leadership* 48:2 (October 1990), p. 51.

20. Rayner and Ryding.

21. Ibid.

22. Norman G. Lederman and Margaret L. Niess, "What's in Style?" *School Science & Mathematics* 98:2 (February 1998), p. 59.

23. Burns, Johnson, and Gable, p. 277.

Editorial
Continued from page 3

and salesman, **Joseph Trombetta** took over subscription management for us in 1998. Dedicated and efficient, Joe enters a mountain of data each year, processes changes of address, prepares and mails printouts for renewals, and has become an ace at dealing with our very complex invoicing system. Despite his initial qualms, he has become an expert at using the computer program—even without a user's manual! Joe works closely with Amy Waller, who wrote the program and makes frequent updates to ensure that all tasks relating to subscription management and billing are performed accurately and in compliance with the complex rules of the U.S. Postal System.

A number of other people's contributions should also be noted: all of the employees of Southwestern ColorGraphics, but particularly those in the mailing department; Enrique Becerra, who does such an excellent job of producing the international editions of the JOURNAL; the magazine's advisory board (with current chair Andrea Luxton); my former secretaries Alma DeBoer and Ruby Phalen (both now retired); and last but not least, Dr. Lewis Larson, now deceased, who for a decade not only served as subscription manager, but also championed the publication with eloquent letters to any organization that dared to reduce the number of copies ordered!

A big thanks to these talented and dedicated people!—B.J.R.

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through this course to get a feel of what online teaching is about. Of course, it would not be for everyone, but the experience is worth the challenge."

• "I enjoy learning, and this is something I've never done before. Also, I'd rather go out and embrace the future rather than have it come after me."

AVLN continues to make an impact on the technology use of instructors at all levels of education. If you haven't yet experienced one of these courses, visit http://www.avln.org/learning to see our schedule and sign up for a course that meets your needs.

A Common Course Management System (CMS)

AVLN has recognized a need for a common Course Management System (CMS) for some time. Currently, Adventist institutions are using Blackboard, WebCT, Moodle, and others. In the summer of 2004, a subcommittee of the Adventist Distance Education Consortium (ADEC), recommended Desire2Learn (D2L) as a potential platform that could meet the

needs of all institutions. Currently, discussions are occurring on many different levels about this possibility. Ultimately, we must ask, "What would a common CMS do for Adventist students and teachers?" If you would like to be part of this discussion, send an e-mail message to collaborate@AVLN or to one of the column editors. ✎

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