

Learning Style Researchers Define Differences Differently

With so many learning style models, differences are bound to exist. Researchers and practitioners need to experiment before a definitive statement can be accepted.

RITA DUNN AND
THOMAS DEBELLO WITH PATRICIA BRENNAN,
JEFF KRIMSKY, AND PEGGY MURRAIN

We can no longer afford to assume that all students will learn through whichever strategy the teacher prefers to use. Recognizing the importance of adapting curriculum and instruction to learners' aptitudes Keefe (1979) movingly states:

Learning style diagnosis opens the door to placing individualized instruction on a more rational basis. It gives the most powerful leverage yet available to educators to analyze, motivate, and assist students in school. As such, it is the foundation of a truly modern approach to education.

Although widespread agreement supports the existence of individual differences, learning style researchers often define the concept differently.

What is Learning Style?

Canfield and Lafferty discuss *conditions, content, modes, and expectations*; the Dunns itemize *stimuli and elements*; Gregorc emphasizes *distinctive behaviors and dualities*; Hunt refers to *conceptual level*; Kolb spe-

cifies *hereditary equipment, past experience, and the environment*; Schmeck contrasts *deep and shallow information processing*.

Three authors refer to cognitive styles rather than learning styles. Hill enumerated many learning style characteristics as part of his model and Ramírez and Castañeda use *field independence/sensitivity and cultural differences* (see Figure 1).

Although these researchers seem to be reporting different characteristics, closer examination reveals that the models overlap in many ways. For example, the element of structure is addressed by Canfield and Lafferty; Dunn, Dunn, and Price; Gregorc; Hill; Hunt; and Ramírez and Castañeda. Motivation and sociological needs are included in descriptions by Canfield and Lafferty; Dunn, Dunn, and Price; Gregorc; Hill; and Ramírez and Castañeda. Perceptual modes are incorporated into the work of Canfield and Lafferty; Dunn, Dunn, and Price; Gregorc; Hill; Hunt; and Kolb. And, thought processing is involved by Canfield and Lafferty, Gregorc, Hill, Kolb, Ramírez and Castañeda, and Schmeck.

With so many models, differences are bound to exist. Canfield and Lafferty address goal setting that others do not specifically note; Dunn, Dunn, and Price describe needs for silence or sound, bright or low light, warm or cool temperatures, formal or informal seating arrangements, intake,

Rita Dunn is Professor, Center for the Study of Learning and Teaching Styles, St. John's University, New York; Thomas DeBello is lead teacher, Nesaquake Intermediate School, Smithtown, New York; Patricia Brennan is a teacher, St. Joseph's School, Long Island City, New York; Jeff Krinsky is a teacher, P.S. #118, Hollis, New York; and Peggy Murrain is principal, Amityville Junior High School, Amityville, New York.



day or night energy levels, mobility or passivity, global/analytical inclinations, and hemispheric dominance; Gregorc refers to learners' preferences for sequential or random learning in either an abstract or concrete form and encompasses electromagnetic theory. Hill's work focuses on qualitative and theoretical symbols and, like that of Ramírez and Castañeda, is concerned with cultural determinants. Kolb relates divergence, assimilation, and accommodation; while Schmeck highlights elaborative versus repetitive processing.

Differences Among Applications

Both researchers and practitioners will need to experiment extensively before definitive statements concern-

ing learning style can be accepted. For example, Kolb suggests that learning style is inherited while the Dunns indicate no relationship between the styles of children and their parents or siblings. Gregorc, Ramírez and Castañeda, and others advocate selective teaching of students through their weaker characteristics to build upon those. The Dunns insist that traits develop over time, and that students should always be taught through their strengths.

Ramírez and Castañeda indicate that learning style is not permanently fixed and most of the authors agree. The Dunns, however, divide learning style characteristics into "factors," "preferences," and "not important" categories suggesting that factors tend

Kolb comments:

I feel there are great dangers in the misuse of learning style concepts. Specifically, we must avoid turning these ideas into stereotypes used to pigeon hole individuals. Furthermore, we should not deny students the opportunity to develop themselves fully by only exposing them to educational environments that match their strengths.

Schmeck comments:

While we all emphasize stylistic consistency, we must also recognize that the context is very influential. Many individuals can change their strategies in response to the unique contextual demands of the instruction, the content, and the test. Perhaps the most important "style" is the metacognitive activity involved in selecting the appropriate strategy for a particular context.

I believe that we can facilitate the development of this higher level skill by periodically exposing students to contextual demands that do not precisely match their styles. This must, of course, be done very cautiously in order to avoid instilling in the student a feeling of incompetence. However, if we roughly match our instructional technique to the student's style while simultaneously providing experience in strategies that are outside that style, we may prompt the development of flexibility. This may be a greater service than always structuring the context to match the student's preferred style.

to be relatively stable over time, while preferences can be overcome by motivation or interest.

Instrumentation

Many of the instruments used to identify learning style were reviewed in a report by Ohio State University's National Center for Research in Vocational Education (Kirby, 1979). Most are self-report inventories; four different instruments are called "The Learning Style Inventory." The Dunns' instrument includes a consistency key to ascertain the accuracy of each reply; the Gregorc and Ramírez and Castañeda tests are supplemented by teacher observations; the Hunt assessment is completed by the teacher.

The studies of each of these writers—no matter how similar or different will contribute substantially toward understanding *how* students learn. In the future, when others translate current research and add what will emerge over the next decade, the many different parts will form newer, better ways of helping students achieve more easily through, rather than in spite of, their many individual differences. ■

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Figure 1. A Comparison of Learning Style Research

Researchers and Their Definitions of Learning Style	Instruments	Applications/Implications
<p>Canfield, and Lafferty</p> <p>Individual learning style is derived from: (a) academic conditions (relations with instructor and peers); (b) structural conditions (organization and detail); (c) achievement conditions (goal setting, competition); (d) content (numbers, words, etc.); (e) mode of preferred learning (listening, reading, iconic and direct experience); and (f) expectation of performance level (superior through satisfactory).</p>	<p><i>Learning Style Inventory</i>: a self-report instrument based on a rank ordering of choices for each of 30 questions. For use with junior high through adult levels. Approximate administration time: 15 minutes.</p>	<p>Major use to develop instructional materials for whole class or individual students. LSI is viewed as a tool to aid in understanding students' difficulties in completing academic units and for counseling. Emphasis on attitudinal and affective dimensions in the Inventory strengthens such application.</p>
<p>Dunn, Dunn, and Price</p> <p>Learners are affected by their: (a) environmental (sound, light, temperature, and the need for either a formal or informal design); (b) emotional (motivation, persistence, responsibility, and the need for either structure or options); (c) sociological (self, pair, peer, team, adult, or varied); and (d) physical (perceptual strengths, need for intake, time of day or night energy levels, and need for mobility) preferences.</p>	<p><i>Learning Style Inventory</i> (LSI): a self-report instrument based on a rank ordering of choices for each of 104 items. For use with grades 3-12. Approximate administration time: 30 minutes.</p> <p><i>Productivity Environmental Preference Survey</i> (PEPS): adult version of the LSI; contains 100 items. Approximate administration time: 30 minutes.</p>	<p>The LSI and the PEPS are designed to diagnose individual learning characteristics. Accompanying manuals suggest prescriptions to complement selected styles to facilitate academic achievement.</p>

Anthony F. Gregorc

Learning style consists of distinctive, observable behaviors that provide clues to the functioning of people's minds and how they relate to the world. Those "mind" qualities suggest that people learn in combinations of dualities: (a) concrete-sequential; (b) concrete-random; (c) abstract-sequential; and/or (d) abstract-random. Preferences for a particular set constitutes a learning style.

Transaction Ability Inventory: a self-report instrument based on a rank ordering of four words to each of 10 sets. Observation and interviews suggested to aid in categorizing learning preference patterns or modes. For use with upper junior high-adult levels. Approximate administration time: 5 minutes.

Strong emphasis is placed on the matching of instructional materials and methods to meet the range of individual preferences. Gregorc also recommends that selected *nonpreferences* be utilized at times to encourage students to strengthen those areas.

Joseph E. Hill

Cognitive style is the unique way in which an individual searches for meaning. It is reflected in the way: (a) qualitative and theoretical symbols are handled; (b) cultural influences affect the meaning given to symbols; and (c) meaning is derived from symbols that are perceived.

Cognitive Style Interest Inventory: a self-report instrument based on a rank ordering which measures abstractions, visual, tactile, and auditory perceptions, motor coordination, and social interaction. For use with elementary-adult levels. Approximate administration time: 50 minutes.

Cognitive Style Mapping identifies student strengths and weaknesses through major, minor, and negligible categories. It serves as a basis for developing a Personalized Educational Program (PEP) which utilizes varied instructional modes to match students and the educational task.

David E. Hunt

Learning style describes students in terms of those educational conditions under which they are most likely to learn and essentially describes the amount of structure individuals require.

Teacher Assessment of Student Learning Styles: observations based on student reactions to systematic teacher-introduced changes in structure.

Paragraph Completion Method (PCM): a semi-projective method which assesses conceptual level. Students write responses to a posed topic. For use with grade 6-adult levels. Approximate administration time: 20 minutes.

Matching educational approaches to student learning style facilitates academic achievement. Conceptual level, in terms of learning style, is a developmental phenomenon which ranges from the "unsocialized" to the "independent." Knowledge of learning style can influence and enhance the development of conceptual level.

David Kolb

Learning style is a result of hereditary equipment, past experience, and the demands of the present environment combining to produce individual orientations that give differential emphasis to the four basic learning modes postulated in experiential learning theory: Concrete Experience (CE); Reflective Observation (RO); Abstract Conceptualization (AC); and Active Experimentation (AE).

Learning Style Inventory: a self-report instrument based on a rank ordering of 4 possible words in each of 9 different sets. Each word represents 1 of the 4 learning modes: feeling (CE); watching (RO); thinking (AC); doing (AE). For use with young adults. Approximate administration time: 5-10 minutes.

Emphasis is placed on individual awareness of personal learning style and available alternative modes. Knowledge of learning style differences should encourage the design of instructional experiences to enhance individual strengths and develop non-dominant orientation.

Ramirez and Castañeda

Cognitive Style Differences (field independent/field sensitive) and cultural differences create individual learning styles. Because learning style is not permanently fixed, it is possible to intervene and affect it.

Child Rating Form: Direct observation checklist format, yielding frequency of behavior scales, is completed by the teacher; it is suggested that older students can rate themselves. Approximate administration time: varies.

Identification of cognitive style is used both to match and mismatch learning and teaching styles. The goal is to encourage personal "bicognitive ability" that reduces favoring one style over another continually.

Ronald R. Schmeck

Learning style is the product of the organization of a group of information processing activities that individuals prefer to engage in when confronted with a learning task. Those activities range from (a) deep and elaborative to (b) shallow, repetitive, and reiterative.

Inventory of Learning Processes: A 62-item, true-false, self-report inventory grouped via factor analysis into synthesis-analysis, study methods, fact retention, and elaborative processing. Approximate administration time: 20 minutes.

Students should be encouraged to develop a learning style which is thoughtful, deep, and elaborative. Through the use of specific instructional strategies, teachers should discourage shallow reiterative information processing.

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