Learning Styles/Teaching Styles: Should They... Can They... Be Matched?

Rita S. Dunn and Kenneth J. Dunn

Most teachers can respond to differences in student learning styles. That is preferable to trying to match students with teachers.

After more than a decade of continuing research, we are convinced that one reason for the variety of theories concerned with how students achieve academically is that each contributes only partial insight into the learning process and that none provides a totally accurate explanation of how individuals gain and retain knowledge.

Not only do people of all ages and intellectual capacities learn in ways that differ dramatically, but certain students achieve *only* through selected methods—methods that frequently fail to produce academic results for others. This is common knowledge among many experienced, sensitive instructors who nevertheless continue to teach the identical lesson to an entire class at the same time and in the same way, eventually requiring a demonstration of mastery at the same hour.

By experimenting with innovative strategies intended to help students learn who formerly had not been successful, we found that most methods and/or resources appeared to work with some students but not with others. That insight led to studies of those youngsters who tended to achieve through specific strategies—and why.[1] Eventually we recognized that, in many cases, those who were successful with a particular method or set of materials had essentially similar characteristics.

[1] Rita S. Dunn and Alonzo H. Shockley, Jr. *Better Education Through Community Involvement.* New York: Freeport Public Schools, pursuant to a U.S. Office of Health, Education and Welfare grant under the auspices of the New York State Education Department, 1970; *That A Child May Reach: Expanded Education in Freeport.* New York: Freeport Public Schools, under the auspices of the New York State Education Department, 1971.

Repeatedly our data revealed that, when taught through methods that complemented their learning characteristics, students at all levels became increasingly motivated and achieved better academically. Although authors use different terms to describe student traits, they tend to agree on the basic elements that constitute one's "learning style."

The 18 Elements of Learning Style[2]—
The Environmental Elements: Sound, Light, Temperature, and Design

Based on observations, interviews, and experimental studies conducted since 1967, it has become apparent that regardless of their age, ability, socioeconomic status, or achievement level, individuals respond uniquely to their immediate environment. Some require absolute silence when they are concentrating, while others can "block out" sound. In addition, there is a segment of the population who actually *require* sound when they are trying to learn; they invariably turn on the radio or phonograph whenever they are attempting to absorb information they wish to retain.

People also respond differently to temperature; some require a cool environment to concentrate while others are more productive when they feel comfortably warm. We know, however, that heat and cold are relative, and that individuals describe temperature in terms of their personal reactions to it.

Learners also respond differently to the amount of light available; some "think better" in softly lit areas whereas others become sleepy unless the illumination is bright, and thus stimulating. However, what is "dull" for some is "bright" for others, and certain students respond to excessive light by becoming hyperactive.

Finally, despite the traditional versus the open classroom controversy, we also know that some youngsters achieve better in an informal physical environment (carpeting, lounge chairs, couch, or bed) whereas others learn more easily in a formal setting (desks, library tables, "hard" chairs).

We lack sufficient research data to add two additional elements that may affect how students' environments affect their ability to learn, but studies are being conducted to determine if weather—or, perhaps, barometric pressure—and color (which may be related to light) should be included as environmental elements of learning style.

The Emotional Elements: Motivation, Persistence, Responsibility, and a Need for Structure

Most teachers will say that youngsters who are not motivated, persistent, or responsible should be taught differently from those who are. Despite that, however, observations verify that teachers *do* try to teach both groups in exactly the same way.

Motivated, persistent, responsible people need to be told what they are required to learn (their "objectives" or tasks), what they may use as resources, how they may demonstrate their acquired knowledge or skill, and where to get help if it is needed. They welcome praise and feedback when the assignment has been completed. The unmotivated—those who are not persistent and/or the less responsible students—require short assignments or very few objectives, frequent feedback, a great deal of supervision, and authentic praise *as they are working*.

Structure is a vital element of learning style. Youngsters who require specific directions, sequential tasks, frequent feedback, and continuing support usually achieve well using programmed learning—if they are highly visual or visual-tactual and able to work alone. If they are tactual-kinesthetic and also peer-oriented, programmed material may not hold their attention. If they need structure, are tactual-kinesthetic (but not highly auditory or visual), and find learning difficult, they may do better with multisensory instructional packages.

Students who tend to be creative, self-structured, or responsive to making choices, appear to perform best with Contract Activity Packages—although teachers experienced in the effective use of CAPS can decrease the amount of flexibility and the number of options provided, thus making contracts suitable for youngsters who require imposed structure.

[2] Rita Dunn and Kenneth Dunn. *Teaching Students Through Their Individual Learning Styles: A Practical Approach.* Reston, Virginia: Reston Publishing Company, division of Prentice-Hall, Inc., 1978. pp. 5-17.

The Sociological Elements: Working Alone, With Peers, With an Adult, or Some Combination

How students respond to other people also contributes to the selection of a method through which they are likely to achieve. Some work and learn best alone; they are distracted by the presence, movements, or sounds of others. For these, depending on whether or not they need structure and whether they are auditory, visual, tactual, or kinesthetic, a Contract Activity Package, a program, an instructional package, or various tactual-kinesthetic resources (task cards, learning circles, or electroboards) should be prescribed.

Other youngsters achieve best when among their peers; for them, Circles of Knowledge, team learnings, case studies, brainstorming exercises, and other small-group techniques tend to facilitate learning.

Students who require interaction with an adult will profit from discussions, lectures, or teacher-directed studies—although it is necessary to determine whether the relationship that is sought is authoritarian or collegial before suggesting whether large or small groups would be more effective. Many youngsters can gain knowledge in a variety of sociological patterns, but some can function only when permitted to learn through specific relationships.

The Physical Elements: Perceptual Strengths, Intake, Time of Day, and Need For Mobility

Years ago, when researchers tested only for visual or auditory preferences, it was thought that approximately half of our population learned through one sense and half through the other. During the past few years we have found that only between 20 and 30 percent of school age youngsters appear to be auditory; that is, they learn and remember what they hear. Approximately 40 percent are visual, with the remaining 30 to 40 percent being either tactual/kinesthetic, visual/tactual, or some combination of these four major senses. If it is true that 90 percent of all instruction is conducted through either lecture or lecture-discussion, it is no wonder that so few students achieve as well as we believe they should. Apparently motivation can overcome perceptual weaknesses, but it is not the motivated youngsters with whom teachers are having problems.

A need to eat, drink, nibble, chew, or smoke when studying, concentrating, or trying to internalize, is also part of how some people learn, as is the time of day when one's energy is at a peak. Another element that either permits or inhibits learning is the ability to remain stationary for longer or shorter periods of time. We mistakenly label some students "hyperactive" when they are either light-sensitive or require a great deal of mobility; many of those youngsters can learn well when permitted to take frequent "breaks" or are assigned tasks which require them to move from area to area.

In 1974, after six years of continuously testing and revising developing instruments, we began using the *Learning Style Inventory* (LSI)[3] to identify individual students' learning preferences; it, however, is reliable and valid only for grades 3-12. During the past two years we have been testing an adult version—the Productivity Environmental Preference Scale (PEPS)—and also have been involved in developing and testing an early childhood version with graduate students at St. John's University, New York.

How Teachers Teach
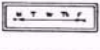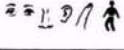
For decades, supervisors have been evaluating faculty in an effort to isolate those characteristics that produce effective instruction. Their efforts have been misdirected by weaknesses both in their assumptions and their basic designs.[4] Those deficiencies include:

• Difficulties in accurately identifying common, positive characteristics of teacher personality and style;

• Difficulties in obtaining objective interpretations of what is observed;

• Incorrect assumptions about what ought to be measured when observing classroom instruction;

• The use of instruments that are designed

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[3] For information concerning the LSI, write to: Price Systems, P.O. Box 3271, Lawrence, Kansas 66044.

[4] Rita Dunn and Kenneth Dunn. *Administrator's Guide to New Programs for Faculty Management and Evaluation.* West Nyack, New York: Parker Publishing Company, division of Prentice-Hall, Inc., 1977. chapters 5 and 6.

Stimuli — **Elements**

Stimuli	Elements					
Environmental	Sound	Light		Temperature	Design	
Emotional	Motivation	Persistence		Responsibility	Structure	
Sociological	Peers	Self	Pair	Team	Adult	Varied
Physical	Perceptual	Intake		Time	Mobility	

Designed by Dr. Rita S. Dunn, Dr. Kenneth J. Dunn

to measure inappropriate aspects of the teaching-learning process;

• A lack of understanding that teachers may be knowledgeable, charismatic, dramatic, hardworking, caring, and dedicated, and still not be effective with students whose learning styles are not complemented by their teaching styles.

There is a commonly ascribed-to belief that, "Teachers teach the way they were taught." A more accurate statement would be, "Teachers teach the way they learned." In our investigations into individual teaching styles, we found that instructors believe that the way they learn is the "easy" or "right" way, and that they therefore direct their students, offsprings, and spouses toward mastering knowledge in much the same manner.

"Teaching style" thus tends to correspond to how each person learned, which partially explains why some teachers are traditional instructors and others are informal ones. Although one's style may be ingrained and difficult to modify, it *can* be expanded to respond to varied learning styles—provided the instructor understands *why* one teaching style cannot be effective with all students and strives to acquire additional skills.

The Nine Elements of Teaching Style[5]

The attitudes teachers hold toward various instructional programs, methods, and resources as well as the kinds of youngsters they prefer working with constitute part of their "teaching style." It is true, however, that some teachers believe in specific forms of instruction that they do not practice (administrative constraints, inexperience, lack of resources, or insecurity) and that others practice methods in which they do not believe (administrative or community mandates, inability to change or to withstand pressures). It is also true that teachers may prefer students different from those they are actually teaching. These two elements ("educational philosophy" and "student preferences") are not observable and cannot be objectively assessed.

"Instructional planning" encompasses the diagnoses, prescriptions, and evaluations completed for students or groups of students and can be evaluated objectively through classroom observations or examination of records, student assignments, and student work. Another element, "student groupings" (how a teacher permits learning to occur sociologically), is also observable. "Room design" reflects the ways in which the teacher uses instructional areas to match the learning needs of students. That, too, is observable and can be rated against clearly stated criteria.

"Teaching environment" is an element that indicates how instruction is scheduled, the number and kinds of options available to students who can cope with them, and the provisions made for mobility and multilevel resources when they

[5] *Ibid.*, pp. 75-87.

are needed. "Teaching characteristics" refers to the values and standards a teacher holds as observed through the operational approaches used to transmit them. Examples include the teacher's degree of flexibility, perceptions of the importance of what and how much is taught and/or learned, and the amount of direction and supervision provided to students.

The "teaching methods" and the "evaluation techniques" used to instruct and then to determine student achievement constitute the final elements and they, too, are observable.

"The environmental elements of learning style and the need for mobility can be accommodated by the teacher—regardless of teaching style, as long as the phenomena are understood, and the teacher is willing to permit some flexibility."

Teachers can assess themselves with a simple-to-administer-and-score instrument[6] that simultaneously identifies their teaching style and reveals the areas that need to be expanded to respond to additional student characteristics.

How Teachers Can Adapt to Different Learning Styles

Extensive observations and research verify significant improvement in both student achievement and motivation when learning and teaching styles are matched.[7] For that reason, supervisors will want to help their staffs to assess how each youngster learns most easily and then to do two things: (a) match instructional resources (which are a form of teaching) with identified student characteristics; and (b) gradually expand their present modes of operation to help students who have not responded to traditional strategies.

Consider, for example, teachers whose current teaching methods include, for the most part, whole-class lectures and discussions. They can be shown how to use selected small-group techniques[8] like "circles of knowledge" or "team

learning" for those students who (a) like to work with other classmates; (b) strain in their seats when required to sit and listen; (c) appear not to remember what has been taught; or (d) may have difficulty paying attention at the time of day the lesson is scheduled. Teachers then may teach just as they always have—but to a smaller group, while those others work quietly in groups of three to five in far corners of the room. Gifted, self-motivated, responsible, and persistent individuals may prefer working alone—and should be permitted to do so away from both the larger group involved with the teacher and the smaller groups of classmates. If teachers are willing to use a seven-step process that develops independence skills and facilitates the management process,[9]

[6] *Ibid.*, pp. 75-87.

[7] Beatrice J. Farr. "Individual Differences in Learning: Predicting One's More Effective Learning Modality." Ann Arbor, Michigan: University Microfilms, July 1971, 1332A. An experiment with 72 college students confirmed that individuals could accurately predict the modality in which they could demonstrate superior learning performance. The data also revealed that it is advantageous to learn and be tested in the same modality and that such an advantage is reduced when learning and testing are both conducted in an individual's non-preferred modality. The most desirable conditions existed when learning and testing were both in the student's preferred modality. See also: George Domino. "Interactive Effects of Achievement Orientation and Teaching Style on Academic Achievement." *ACT Research Report* 39: 1-9; 1970. One hundred students were grouped in accordance with their perceptions of how they learned. Some of the groups were then taught in a manner consonant with their perceived learning style (achievement orientation) while others were taught in a manner dissonant with their orientation. The testing data revealed that the students who had been exposed to a teaching style consonant with the ways they believed they learned scored higher on tests, fact knowledge, attitude, and efficiency of work than those who had been taught in a manner dissonant with their orientation. For data concerning elementary school students, see also: Rita Dunn. "Another Look at Individualized Instruction." *Kappan* 59(6): 400-02; February 1978; and "Individualizing Instruction Through Contracts— Does It Work With Very Young Children?" *Audiovisual Instruction* 16(3): 78-80; March 1971.

[8] Dunn and Dunn, *op. cit.*, chapter 3.

[9] Rita Dunn and Kenneth Dunn. *Educator's Self-Teaching Guide to Individualizing Instructional Programs.* West Nyack, New York: Parker Publishing Company, division of Prentice-Hall, 1975. chapter 2.

they will find that this system promotes learning, decreases tension, and permits youngsters to achieve more easily.

Is This Realistic?

Newcomers to the concept of learning style are sometimes overwhelmed by the listing of 18 elements that may affect students to varying degrees—but they need not be. Most of the elements can be accommodated easily by developing students' awareness of their own styles, permitting some flexibility, and then gradually developing the types of resources that complement learning styles that appear not to flourish in a conventional instructional setting.

Rules and standards of behavior should be established, and youngsters should be required to exercise self-discipline, but most young people can be taught to become independent and responsible while in an instructional setting.[10] It is pre-

cisely those students who are most difficult and who absorb most of our attention whose learning styles do not match the kind of instruction to which they are being exposed—and who most need the organized, sensitive matching of their learning characteristics with an appropriate teaching style.

The environmental elements of learning style and the need for mobility can be accommodated by any teacher—regardless of teaching style, as long as the phenomena are understood, and the teacher is willing to permit some flexibility. Nor is it difficult to respond to the sociological differences manifested in most classrooms: teacher or adult-oriented students work directly with the teacher; peer-oriented students (those who will really work that way) use small group techniques to learn the same materials; self-motivated students (usually the very bright, sometimes the slow

[10] *Ibid.*, chapter 5.

Figure 2.*

Method or Resource	Learning Style Characteristics to Which It Responds	Learning Style Characteristics to Which It Does Not Respond	Learning Style Characteristics to Which It Can Be Accommodated
1. Programmed learning	Motivation, persistence, responsibility, and a need for structure; a need to work alone, a visually-oriented student.	A lack of motivation, persistence, or responsibility; a need for flexibility or creativity; a need to work with peers or adults; auditory, tactual, or kinesthetic perceptual strengths.	Sound, light, temperature, and design; a need for intake, appropriate time of day, and a need for mobility.

Note: When programmed learning sequences are accompanied by tapes, they will appeal to auditory learners; when they include films or filmstrips, they will reinforce the visually-oriented student; when teachers design small-group techniques such as team learning, circle of knowledge, or brainstorming, peer-oriented students may develop an ability to use programs more effectively than if they use them exclusively as individual learners.

Method or Resource	Learning Style Characteristics to Which It Responds	Learning Style Characteristics to Which It Does Not Respond	Learning Style Characteristics to Which It Can Be Accommodated
2. Contract activity packages	A need for sound and an informal design; motivation, persistence, and responsibility; a need to work either alone, with a friend or two, or with an adult, all perceptual strengths and weaknesses and the need for mobility.	None	Sound, light, temperature, and design; motivation, persistence, responsibility; sociological needs; perceptual strengths, intake, time of day, and the need for mobility.

Note: Contract activity packages respond to all learning style characteristics provided that (1) they are used correctly, and (2) multisensory resources are developed as part of them.

Method or Resource	Learning Style Characteristics to Which It Responds	Learning Style Characteristics to Which It Does Not Respond	Learning Style Characteristics to Which It Can Be Accommodated
3. Instructional packages	A need for sound or structure; a need to work alone; all perceptual strengths.	A lack of responsibility; a need for peer or adult interactions.	Light, temperature, and design; motivation, persistence; intake, time of day, and mobility.

Note: Because of their multisensory activities, instructional packages are very effective with slow learners. Unless the curriculum is extremely challenging, they may be boring to high achievers.

Method or Resource	Learning Style Characteristics to Which It Responds	Learning Style Characteristics to Which It Does Not Respond	Learning Style Characteristics to Which It Can Be Accommodated
4. Task cards and learning circles	Motivation, persistence, responsibility, and the need for structure; visual or tactual strengths.	A lack of motivation, persistence, responsibility, or a need for structure; auditory or kinesthetic strengths; a need for mobility.	Sound, light, temperature, and design; the need to work alone, with peers, or an adult; intake and time of day.
5. Tapes, audio cassettes	A need for sound; motivation, persistence, responsibility, and a need for structure; a need to work alone; auditory strengths.	A need for silence; a need to work with peers or an adult; visual, tactual, and a need for mobility.	Light, temperature, and design; intake and time of day.

*Rita Dunn and Kenneth Dunn. *Teaching Students Through Their Individual Learning Styles; A Practical Approach.* Reston, Virginia: Reston Publishing Company, division of Prentice-Hall, 1978. p. 23.

but motivated, often the tactual-kinesthetic) may study alone with appropriate resources.

A student's perceptual strengths and weaknesses are extremely important, for no matter how motivated a youngster *might* be, inability to absorb and retain through an inappropriate sense tends to dampen motivation and, certainly, inhibits achievement. However, once a student's perceptual inclinations are recognized, all the teacher needs to do is assign the appropriate resource and permit grouping through a complementary sociological pattern.

Time of day, too, is important, but if a student isn't capable of learning when the lesson has been planned, perhaps he can learn the material at another time through another resource. For example, will the teacher tape record the actual lesson as it occurs (interruptions, questions, and all!) and permit the student (and those who were absent or unable to understand it entirely) to borrow the cassette? Can the student learn the essentials of the lesson through a filmstrip? a book? or an interview?

The emotional elements are also crucial, but,

as indicated in the first section, they can be dealt with knowledgeably and effectively by teachers who are willing to move a bit along the teaching style continuum so that they begin to respond to many more individual differences than they do currently.

Why Not Just Match Teachers With Students?

It is easy to suggest that students in need of an informal physical environment, opportunities to choose among options, working with peers and/or alone, intake, and mobility should be assigned to one kind of teacher; whereas, those in need of a formal environment, who are adult-oriented, who are motivated, persistent, responsible, and in need of structure, and who are not in need of mobility should be assigned to another kind of teacher. The fallacy is this: (a) learning style and teaching style characteristics do not always cluster into such neat packages; (b) students are not consistently one way or the other—nor are teachers; (c) neither traditional nor informal teachers are necessarily excellent, and it is possible to match a student's learning style and a teacher's teaching style and still not provide that youngster with an effective teacher; and (d) given the practical, "how-to" skills for teaching students through their individual learning styles, most teachers can become effective with most students and, simultaneously, provide a humanistic, caring, nurturing atmosphere. And, after all, isn't that what professional teaching should be?

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