

# Learning Styles: An Interview with Edmund W. Gordon

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By Nancy Rabianski-Carriuolo

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**Nancy Rabianski-Carriuolo:** What are learning styles, and how much do they differ by group?

**Edmund Gordon:** Learning styles are characteristic ways of responding in learning situations. One illustration is the difference between the concrete learner who prefers to touch what he/she has to learn and the abstract learner who prefers learning from a symbol such as a picture or word. There are also other styles such as quick learners and slow learners (based not on quality of intellect but reaction time), and learners who prefer much more active general behavior but for whom activity and external stimulation are distractors.

We think that these differences in style are primarily individual differences, but in recent years we have also begun to consider group differences in learning styles. We cannot distinctly tie particular learning styles to ethnic, gender, or language groups. On the other hand, if we assume that learning styles do not necessarily reflect some biological or genetic characteristic, we can reasonably assume the cultural experience of youngsters does shape their style.

**N. R.-C.:** Should an instructor be knowledgeable about a student's cultural back-

ground? If so, what are some of the behaviors that might be expected based on various cultural backgrounds?

**E. G.:** An instructor working with a particular population should know what kinds of behaviors are likely. On the other hand, the teacher should not expect only certain behaviors and, as a result, let other behaviors go unnoticed.

One of my postdoctoral fellows is exploring the thesis that, generally, Afro-American students tend to learn more effectively in situations marked by high activity, rhythmic patterns of stimulation, and structure. Doctors Brenda Allen and Wade Boykin (her mentor) argue that these patterns, which tend to be peculiar to the cultural backgrounds of Afro-Americans, make some learning tasks easier. Some years ago, I. Amiri Baraka, who ran the African Freedom School in the heart of a New Jersey ghetto, was criticized for running a school that was almost entirely built around rhythmic patterns and the beat of a drum. The presence of this kind of stimulation in the environment better allowed these youngsters to organize their learning behavior.

Although not related by Boykin and Allen to their findings, the studies of behavior and adjustment in infants seem to me to be relevant. If a metronome, the timing device used by pianists, is placed on the side of an infant's crib immediately after birth and for the first six months of life, the child will have less colic, sleep better, and socialize much more readily. We believe that for the nine months of fetal life, the youngster's behavior is in part regulated by the steady beat of the mother's heart. After birth, the metronome replaces that reference point. According to sensory deprivation research, adults who are deprived of regular stimulation also soon experience disorganization in behavior because living organisms, certainly animals, appear to require some external structure around which to organize themselves.

Why do lower-income, Afro-American students appear to be more responsive to structure than middle-class, Caucasian students? In the socialization experience of middle-class, white students, they are likely

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learning to create structures for themselves. The lower-class, black students don't learn to generate structure themselves, so they need structure from an external source.

In regard to a cultural difference of Hispanics, Alex Thomas and Stella Chess have studied patterns of temperament in Hispanic and middle-class whites. As a part of their assessment procedure, they gave a standardized intelligence test. They reported that the Hispanic students tended to view the testing situation as a game and were relaxed about it; whereas, the white middle-class students tended to be challenged, sometimes even threatened, and were much more serious, even anxious.

These observations led Thomas and Chess to examine the child-rearing patterns of these two groups. They found that the Hispanic mothers seldom make precise intellectual demands on the youngsters; instead, they encourage their offspring to explore words, songs, or experiences in a playful manner rather than a work-related manner. Hispanic youngsters don't need to produce a reaction to outside stimulus as long as they can produce in response to their own stimulus. Therefore, to the extent that response to demand could be called a learning style, the Hispanic population tends to demonstrate that tendency much less frequently than a middle-class, white group that is socialized almost from early childhood to produce on demand as is expected in school. For example, articles in the *New York Times* occasionally discuss parents who coach their children for admission into the so-called best nursery schools. Youngsters who come out of traditions where they have been coached to respond to the almost irrelevant demands of adults are likely to produce in those types of learning situations.

**N. R.-C.:** There have been some discussions over whether or not learning styles can be changed over time, and whether we should attempt to change them or not. What do you think?

**E. G.:** I think without direct and powerful intervention, learning styles tend to be fairly fixed, but Benjamin Bloom talks about how, as we move from the 2nd to the 10th year of life, the early patterns of behavior become more resistant to change. He argues the behaviors can change, but that most of us don't experience sufficiently radically different life experience to cause reorganization of our behavior.

Therefore, learning styles can change, but they are not likely to change because most of us are going to be in the same pattern of relationship to our external world and that reinforces our earlier patterns. Furthermore, we have some evidence that those things that are learned late in life differ from the patterns learned earlier in life and never achieve the same degree of automaticity as those that were learned early. Reading is one of these. Youngsters who learn to read

between the ages of 4 and 7 invariably are more efficient, proficient readers than those who learn at ages 6, 7, 8, and 9. Even more pronounced is language mastery. Few people who learn a second language after the teenage years develop the degree of fluency in that second language that they have in their first language. In all of these instances, we have an illustration of the power of the habit of prior established patterns.

**N. R.-C.:** Bernice McCarthy speaks of learners moving from a specific brain dominance to becoming more whole brained through activities, such as typing, which require involvement of both sides of the brain. To what degree can we accomplish such changes?

**E. G.:** I think she has evidence of the capacity to increase the efficiency of the right hemisphere in the left-hemisphere dominant person, but I have seen no evidence that leads me to be comfortable with the conclusion that, through training, a person can bring the opposite hemisphere to a higher level of efficiency and function than the dominant one. We certainly know from

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our work with impaired persons that the brain has enormous adaptive capacities: For example, when people have had severe damage to the right side of the brain, the left side can be brought to a high level of efficiency that may even exceed the earlier degree of competence of the right dominant hemisphere. However, that is true in the absence of the continued development of competence in the right hemisphere. If a person had an accident at age 15 and is trained to use the left hemisphere for the next 5 or 10 years, that left hemisphere may eventually be operating at a higher level than the right hemisphere was at the time it was damaged. However, this change is a product of experience and maturation. We don't have instances where the right hemisphere is still intact and functioning at the same time the left hemisphere is being trained. This would be the final test of the capacity to bring the left hemisphere to a superior level of competence.

The late professor Birch studied rehabilitation patients with neurologic insults, and he hypothesized that activity in the left

hemisphere often triggers activity in the right hemisphere, and that process could reverse itself. That led him to question whether or not our then existing ways of identifying left-cerebral and right-cerebral functions was accurate or not. Something that seemed to be emanating from the left hemisphere may actually have its origins in the right hemisphere and is being mediated now by the right hemisphere.

Regarding the behaviors of learners, we only have room to manipulate the environment. We can't alter the genetic characteristics of human beings as yet, so that if we begin with the assumption that the behavior we produce is a function of the richness of the learning environments we create, then those products are limited probably only by our creativity in designing educational interventions.

**N. R.-C.:** Please discuss some of the ways we can enrich our classrooms. I have read, for example, that algebra is easier for the left-brained, analytic learners and geometry easier for right-brained, holistic thinkers. How can we make our courses equally accessible to both types of learners?

**E. G.:** Algebra can be taught more as we currently teach geometry and vice versa. Schooling, not only in the U.S. but most of the technologically advanced world, places a high value on abstract thought, so abstract thinkers function better in those environments than concrete thinkers. However, that does not mean that one cannot organize school around concrete learning experiences which could give concrete learners a great advantage.

Many years ago Tyrone bred one group of rats for sound sensitivity and another group for visual sensitivity. Then he created a maze in which the available external stimuli were auditory rather than visual, and, of course, his rats bred for auditory sensitivity were brighter and ran mazes faster than those bred for light sensitivity. Style makes a big difference, depending on the requirements of the learning situation.

As long as the learning situation is constant, some styles are going to be more efficient than others, but if the learning situation changes, a particular style may not persist. The implication for educators is that we have designed educational interventions along too narrow a range of variation. Since we know that our students vary more than our instructional methods vary, we have got to broaden our instructional methods with our instruction materials.

**N. R.-C.:** What factors other than learning style are important to instructional design?

**E. G.:** I am currently editing a group of essays I hope to publish this summer under the title *Human Diversity and Pedagogy*. In it, I look at a variety of manifestations of diversity in the characteristics of human beings that should impact on education. I discuss two categories: status characteristics and functional characteristics. Learn-

ing style is a functional characteristic since it addresses how one goes about doing things. A status characteristic such as social class, ethnicity, or gender speaks to the status one has in society. They are not mutually exclusive categories because there are certainly some aspects of ethnicity that have implications for how people behave. On the other hand, ethnicity is much more likely to determine how society treats a person than how the person is likely to behave, just as gender is much more likely to determine how a person is treated by society than how the person is going to behave. Temperament, motivation, or interest are functional characteristics because they really address how this person functions. In order to capture a student's interest, the instructor must know matters such as whether a student is interested in particular kinds of things, has high interest or low interest, and is slow to be interested or easily interested. Simply recognizing a black student doesn't necessarily tell the teacher how to go about organizing the learning experience.

So within the functional area, in addition to cognitive style, we do have temperament. Activity level, mood, and cautiousness/impulsivity are generally thought of as temperamental characteristics. They spill over into learning styles because they can also influence the ways in which one reacts in a learning situation. Temperament is clearly a dimension of human behavior that is fairly consistent within the lives of particular persons but varies enough across people for teachers to be sensitive and aware of it.

Motivation is another dimension. I may be motivated by some forces that appear to operate inside of me such as pleasure. You may be motivated primarily by things that are external to you such as approval. These dimensions of behavior may be equally as important as learning style.

Each of these specific dimensions of diversity (whether learning style, temperament, gender, language, interest, or intelligence) as a separate variable may be less important than we had previously been led to think. The important thing may be the way in which they form a pattern and are orchestrated since none of us brings only his gender, cognitive style, interest, temperament, or motivation to a learning situation. I think the tradition in psychology of isolating variables and controlling for everything else, has not operated in our favor. We have identified some of the contributions that specific variables make to certain outcomes, but we don't understand the processes by which they operate: We have to look at the dynamic interaction of these variables.

**N. R.-C.:** To what extent should we match learner characteristic and teacher characteristic?

**E. G.:** I don't like that notion. I prefer to use a term I call complementarity, in which the learning material and learning experience seek to complement the needs of the learner.

If one begins with the assumption that

human beings have a variety of intelligences (both intellectual abilities and patterns of habits by which those abilities and functions are manifested), the task of education is to facilitate their expressions. Some can be more easily facilitated in homogeneous groups, which seems to support the notion of tracking. However, when we group people on the basis of any variable on which we choose to group them, there are many more variables for which they are mismatched.

One could almost make a legal case regarding the grouping of people around a particular variable since that tends to eliminate attention to all these other variables that should be considered. In "Learning Tasks - Specific Grouping," my notion was if one were going to group the learner in response to what has to be learned, he/she may now be in Group A, for the next experience in Group F, and for still another experience in Group S. From this multiplicity of learners, the richness of the learning experience flowers.

If I were to match student and teacher or student and group learning style, I would only do that briefly because the long-term objective is to increase the stylistic variance

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in this person's behavior. I want him to be able to respond in a variety of different situations, and if I always place a learner in concrete situations that means he/she never learns to think abstractly.

The instructor needs to engage in a continuous dynamic assessment by asking: "What does this youngster need at this particular time to enable his learning?" It may or may not be a matching situation, or it may be an alternate match and nonmatch. At any point one has to be adjusting back and forth: as nurses adjust a patient's care in a good recovery room. There are so many answers that what a learner needs is a wise and skillful professional person who can constantly mediate between the learner and the learning environment.

**N. R.-C.:** Al Canfield found developmental students tend to prefer hands-on learning, and we don't offer many opportunities for that kind of learning in postsecondary classes. How do you suggest we lend legitimacy to varied styles?

**E. G.:** I have been thinking about writing a paper on the difference between individ-

ualization and personalization. I think that teachers shy away from individualization because they think that it requires so much work, but personalization is not so much customizing the design of the complete learning experience for the person as it is a matter of making the learning experience meaningful for this person. If I simply shift the pace, focus, or emphasis, this may be enough to enable the student to engage in the learning experience.

One of the things that I have taken from Uri Treisman's work at Berkeley is the notion that when groups learn cooperatively in learning, the situation works on the strengths as well as the weaknesses of different people. For example, if I do not understand a particular part of the problem and four or five other people are working on it with me, the chances are that one of the other people will reflect on the problem in a way that I can understand.

Treisman also insists that all of the members of a group get the same grade. If one student is responsible for another's learning, and the partner is not quite keeping up, his peer must apply some of his/her energies to figuring out how to help.

Treisman's other strategy is to create opportunities for students who approach problem solving in different ways to demonstrate to other students how they have done it. If three students find three different routes to the same solution, and each person explains how he did it, then each person comes to appreciate three different thinking styles. *Problem-Solving and Comprehension*, by Whimbey and Lochhead, suggests pairing off students to verbalize their problem-solving behavior. Students learn respect for each others' thinking and can self-correct when necessary.

In developing his methods, Treisman turned to Asian-American students because, unlike his Latin-American and Afro-American students, they seemed to be academically successful. When he began ethnographic studies of his minority lower- and higher-achieving students, he discovered that the Latin-American or Afro-American students tended to engage in academic mastery as autonomous, individualistic activities. They studied alone. However, when he studied the Asian-American students, he noticed they studied in groups. They tutored, questioned, and supported each other. Treisman decided to teach his Latin-American and Afro-American students to adapt some of those strategies to their own learning. This approach to team learning along with the problem-solving strategies he was using in his laboratory reversed the downward trend of the academic achievement of his Latin-American and Afro-American students, and I think that, in the latest data I have seen, the low-status minorities were functioning at about the same level as the

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highest status Anglo students. They haven't quite yet caught up with the Asian students, but they are certainly competitive with them.

I am not entirely certain that just the cooperative learning experiences of Asian-American students account for their current academic powers. My student, Miss Lee, has interviewed the parents of Korean students to look for the patterns of academic support in Korean homes. She found several of the usual things: a fairly high degree of emphasis on academics, materials in the home that supported academic learning, and modeling of academic behavior on the parts of mothers (not necessarily on the parts of the fathers). She focused most on the educational level of these mothers. I don't know how free we are to generalize to the entire Korean population, but Korean men tended to marry women who were better educated than they. During the childhood years of their children, they insisted that these women stay home and be mothers.

Miss Lee raises the question as to whether these highly literate and well-educated mothers have contributed to the academic prowess of the children or whether they were affected by their social and peer relationships. My guess is some of both. Problem solving and the kind of learning that involves social sensitivities and the application and integration of knowledge from a number of sources, in particular, are advanced in group- or cooperative-learning situations.

Instructors with no background in group learning are troubled that using collaborative strategies may cause chaos in their classrooms. However, what sometimes sounds like confusion and lack of order may not be dysfunctional. Reuven Feuerstein has described the chaos that one would observe in the study halls of the yeshivas of Israel where students are paired off in small groups to debate with each other. No one is listening to anyone else except to one's partner. Feuerstein goes on to describe the retention of knowledge and analytic skills that these youngsters develop despite the seeming disorder.

When I switch to group activities in my classrooms, I always take a few minutes to orient students to my expectations, the nature of the task, and models for attacking the problem. I usually designate one or two people to assume responsibility for facilitation. One person is convener; another person is recorder. Since some anchors keep the groups on target, this takes the pressure off the teacher. However, my instructional behavior actually increases. I move from group to group to ensure learning is taking place.

**N. R.-C.:** What are the advantages of knowing one's own learning style?

**E. G.:** Metacognition has crept into education in recent years from cognitive psychology: It roughly means knowledge of

one's own mental processes. You may ask why it's important to know how I go about learning. It seems that all of us use a variety of strategies and even a variety of styles in assaulting problems. Many of us do this randomly. That is, if we've got a problem, the first strategy or device that comes to mind or has worked before we try.

Some others of us, though, use something that Sternberg calls executive strategies; the first thing that the executive does is try to figure out what the problem is and devise a strategy for tackling that problem. We can figure out what the problem means without understanding what goes on in our own thinking. On the other hand, when I deliberately set up a strategy to solve the problem, if I know my own learning style, I am able to choose the strategies, skills, and approaches that are going to work. For example, if I am dealing with a problem that I know requires that I use analysis rather than synthesis, and I apply my analytic skills not my synthesis skills to it, I am likely to solve that problem more quickly than if I randomly select synthesis skills for a problem that requires an analytic approach. Similarly, if I know that I am a concrete per-

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son faced with a familiar problem that requires some abstract thought, maybe I can approach it abstractly because of my familiarity. If the situation is novel, I may try to get some concrete representation of the major elements of this problem so I have some anchoring before I begin to solve the problem. But again, I cannot do that unless I know something about my own style, my own approach to problem solving, which convinces me to make these kinds of selections. If one is going to use Sternberg's concept of executive strategies—that is the managing of one's own thinking—the more one knows about one's own thinking, one's own style, the greater capacity one has to select and choose strategies and the richer will be the intellectual behavior.

**N. R.-C.:** Do you have any advice regarding the use of learning style instruments?

**E. G.:** I spend time talking to students, observing them in problem-solving situations, talking within groups about their views of themselves, and then sit back and do a psychodynamic write-up of what I have seen.

I am not sure that that technology is yet sufficiently well developed for me to be comfortable with the psychometric instruments. Students vary in their capacity and willingness to give information. However, with time, if the instructor is perceived as

a helping person not an evaluator, students begin to give rich information.

The instruments lead novices to think that they have made a more precise and definitive diagnosis than I think is possible right now. My advice would be to use a learning style test with the awareness that it is a probe: a sample of one's behavior.

**N. R.-C.:** Should the person who is administering the test be familiar with the test questions and feel comfortable that they are the same kinds of questions one would ask in an interview? Also, would you suggest discussing the test results with the student?

**E. G.:** Absolutely. What you're proposing is that the instrument be used almost as a guide to clinical interview, and I would be much more comfortable with that than trying to use it as a formal test.

**N. R.-C.:** Our readers engage in some classroom research. Please mention a few good questions for them to address in their classes.

**E. G.:** We had earlier mentioned Whimbey's little strategy of having students pair off and verbalize their problem-solving strategies. We have an insufficient amount of good ethnographic data on the learning behaviors of young people. Instructors could document the varieties of problem-solving strategies, and someone could write up the protocols.

Secondly, I am beginning to doubt now that learning style works consistently in different learning situations. For example, the mere fact that I am a good reader doesn't mean that I can read everything with great facility. Social science is the thing I know best and fiction speaks to my experience, so I can use rapid-reading techniques. However, when I read chemistry, physics, or engineering books, I am practically decoding words. Some of us need to examine the different styles that students use in various learning experiences or bodies of knowledge and begin to document how one upshifts or downshifts as one begins to use one's metacognition to mediate interaction with material. We could use this to teach people the process. At the moment, we assume that the process takes place, but there is little documentation.

Third, we have many groups of young people fairly comparable in ability but with wide variations in performance. We need to understand the experiences of these young people: What is facilitating or slowing the learning of successful and unsuccessful learners? We used this approach in the early stages of the work in cognitive-psychological research to understand how efficient and inefficient learners differ. I think instructors could almost routinely address these questions without adding a major burden to their schedules. ☉

Bibliography available by request from *Journal of Developmental Education*.