
DIFFERENT LEARNING FOR **DIFFERENT** LEARNERS

Adjusting the College Curriculum to Individual Needs

BY GERRY COLVIN

We are always trying to make sense of our world in the best ways we can. When we were students, most of us hoped that our textbooks and teachers accurately communicated the nature of the world outside our classrooms—although we often wondered if we would ever get there!

On reflection, however, we have to admit that those long-ago writers of our textbooks and those superannuated teachers were doubtlessly trying to make sense of their own worlds. In short, they were sharing their best guesses for the world of *their* tomorrow.

The Profound Nature of Knowing

As a result, teachers today must ask themselves some pointed questions about their lecturing styles and choice of study materials. What do students need to know? What knowledge will be most essential to the world of their tomorrows?

Some argue that the most essential learning revolves around the construction of meaningful ideas rather than the memorization of inert facts arranged by teachers and textbooks. Others like Gestalt psychologist Max Wertheimer have discovered that practiced performance in school tasks can mask our failure to

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understand why certain procedures actually work. An over-reliance on these familiar techniques can actually hide our inability to adapt our problem-solving techniques.

As students, many of us had a “ready” mind for both memorizing and assimilating rote learning. School recitation and quizzes came easy for us, probably too easy. Seldom were we challenged beyond the “quick fix,” and only now are we belatedly discovering that in

the world beyond the classroom things are not so patterned and linear. Most employers value more highly adaptability and ingenuity than the ability to parrot, alphabetize, or enumerate.

We must therefore search for a perspective on learning that is not only knowledge- and instruction-centered, but that also emphasizes *thinking* and *meaning*. Knowing is obviously more than receiving and repeating; it also requires interpreting and relating information to other knowledge. In the real world we need to know more than how to perform a certain action. We also need to know when to perform it and how to adapt our actions to varying circumstances. As teachers we manage to teach the *what* of performance quite well, but teaching the *when* and *where* is not so easy.

Different Learning Attitudes and Styles

Students bring to the classroom quite different assumptions and learning styles. For example, people react differently when they fail to solve a difficult problem on their first attempt. Dweck¹ found that some relish the challenge, while others try to escape the situation, thereby depriving themselves of the opportunity to learn. In fact, Dweck became adept at predicting who would accept a challenge

and who would give up. Students who thought that traits like intelligence change with practice were much more likely to accept challenges and to persist on tasks. But those who thought that intelligence is fixed tended to do poorly after an initial failure.

Intelligence Profiles

Still, the problem of differences in learning outcomes cannot be quite so easily explained. Although every student can learn, not every student learns in the same way. If studies of the gifted have taught us anything, it is the very personal nature of intellectual profiles. Most IQ tests are grossly inadequate to measure the range of mental abilities, although some of those diverse abilities are suggested by certain components on those scales.

Different Cognitive Learning Styles

Annette Kolodny, dean of the faculty of humanities at the University of Arizona, stresses a similar point. "In any population, however homogeneous, one can always find evidence of different intellectual talents and cognitive patternings."²

Different cultural groups may prefer one cognitive style over another: reasoning by analogy rather than strict linear logic; inductive instead of deductive problem-solving approaches; empathic over abstract linking of information; and group-oriented rather than solitary learning. With the demographic shifts at all levels of our educational systems, our most pressing challenge will be responding to the richness (and threat!) of cognitive diversity.

The director of the introductory German program at the University of Arizona has designed a learning-mode profiling technique. This technique shows whether a beginning student will require a large conceptual framework, or will achieve linguistic competence from an aggregate of details. Profiles are generated from computerized testing and teacher-student interviews.

The director expects to discover whether a student learns best through audio, visual, or written cues—or some combination of the three. Even personality traits may be taken into account. For

example, is the student an extrovert (who prefers to gain verbal competence in a new language quickly and does not mind correction), or an introvert (who characteristically chooses listening, writing, and reading exercises as his or her primary means for gaining competence)?

Such instructional technologies will enable college language professors to design learning programs, software, and teaching strategies to suit the broad range of cognitive styles. Teachers will be able to experiment with learning structures that appeal to cognitive styles other than their own. While fostering students' awareness of how they learn, learning profiles can help them gain knowledge in new ways. Students who respond easily to visual cues, for instance, can elect to link visual and auditory information on an interactive computer program, thereby developing more sensitivity to the sound patterns of a new language.

Learning Styles and Science

A related question concerns how students "read" science. Roth³ observed that students used one of five different approaches in reading science textbooks, only one of which resulted in conceptual change.

1. Students avoided thinking about the text while they were reading and relied on prior knowledge to complete the activities related to the reading.

2. Students tended to over-rely on words in the text to complete the activity. They answered questions by matching key words in the question with the same words in the text, and then copying the sentences in which the words appeared.

3. Students memorized facts as they appeared in the text without relating them to the real world.

4. Students depended on prior knowledge to make sense of the text. Because their opinions often conflicted with text content, they tended to distort or ignore information to make it fit.

5. Students modified their prior knowledge to make it conform with text content.

Roth found that students using the fifth strategy—which required the greatest conceptual change—were more likely to acknowledge feelings of confusion or difficulty in understanding the text. Obviously, this shows that teachers must evaluate the levels of understanding their students have achieved. They also need to seek methods to help students progress toward a better understanding of principles and concepts.

The dimension of field independence/field dependence⁴ in relation to individual learning styles has also been much studied. For example, investigators have noticed that field-dependent students are less able than field-independent students to keep an item separate from its context. Good and Stipek⁵ found that field-dependent students usually prefer to work in groups that have frequent teacher interaction. Field-independent students, however, often perform better in self-directed study. Field-dependent students are more likely to strive to please their teachers and to require more explicit instruction from their teachers.

Current Directions for Future Outcomes

Much of our college students' work life will occur in the next millennium in a workplace we can only dream about. What then is the best education we can give them? Should it be information based? Definitely. Skills oriented? Certainly. Problem centered? Of course. But much, much more. Let me present two possible models.

Cooperative learning models. These are perhaps the most promising of the current models. Cooperative learning strategies include at least four key attributes: positive interdependence (achieved through

common goals, division of labor and resources, and joint rewards), personal interaction among students, individual accountability, and appropriate use of small-group skills. Cooperative learning experiences surpass competitive and individualistic approaches in promoting higher achievement, greater competencies in critical thinking, and more positive attitudes toward subject matter.⁶ Teachers interested in utilizing cooperative learning strategies would do well to ponder the following guidelines:

1. You can use cooperative learning procedures for any type of academic task. However, the more conceptual the learning, the greater will be the effectiveness of cooperation.

2. Structure cooperative-learning groups so that disagreement is both welcomed and constructively managed.

3. Encourage students to keep one another on task, while discussing the material in ways that ensure the use of higher-level learning strategies.

4. Include in each group students with varying abilities.

5. Encourage positive relationships among group members.

Learning-styles models. As you may have already surmised, learning-styles models are built on three major assumptions: (a) students differ significantly in their styles of learning, (b) those styles can be assessed, and (c) knowledge of those styles can benefit both teachers and learners. Keefe⁷ partitions learning style into three dimensions: cognitive, affective, and physiological. We hear much about cognitive learning styles, but the last two are less frequently discussed.

By affective learning style Keefe means those personality traits involving attention, emotion, and valuing. He further divides this dimension into attention styles (such as conceptual level) and expectancy and incentive styles (such as locus of control). Physiological learning styles involve, on the other hand, time rhythms, need for mobility, and environmental elements.

Numerous instruments can be used to identify these dimensions. For example, Gregorc's⁸ "Style Delineator" asks students to respond to 20 sets of behavioral descriptors indicating their most- and least-preferred descriptor. The results are used to categorize students as predominantly concrete sequential, concrete random, abstract sequential, or

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abstract random. The Learning Style Inventory⁹ directs students to express preferences about learning conditions. They are asked to respond to more than 100 items, such as "I like to study in bed" or "I study best when the lights are low." Teachers can use the results to adapt their instructional techniques to students' preferred learning styles.

In Conclusion

What aspects of your college education have been of greatest benefit to you? Were they predominantly factual? I doubt it. Were they primarily skills-oriented? Maybe. But more likely, the most helpful things you took away from your college experience were (1) the characteristic attitudes that you developed toward physical and intellectual challenges, (2) those techniques you discovered for quickly and efficiently locating pertinent bits of information, (3) successful strategies for developing *community* in your work, worship, and living centers, and (4) a more accurate perception of your own aptitudes and preferred styles for learning.

In looking toward the future, teachers must reassess their teaching styles and content. Attitudes and assumptions from yesterday's classroom cannot automatically be assumed to have relevance to the future of today's students. For example, college teachers are finding that their students have already been shaped by two decades of scholarship in women's studies, African-American studies, multicultural readings, and the like. Unlike students of even a few years ago,

they are choosing careers in which gender, class, race, and ethnicity constitute legitimate categories for analysis. What do we as teachers have to say to these students? How do we integrate our disciplines with their chosen fields of study?

Established teachers, as well as new Ph.D.s wishing to pursue academic careers, need to acquire classroom skills that will help them teach the increasingly diverse students who enroll in their introductory courses. They must adapt their teaching not only to students' different cognitive styles, but also to different affective and physiological styles. The teachers of today and tomorrow must not only teach *everyone*, but also teach *everyone better!* ❧

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