

3rd Discussion

is a goal-directed mental activity marked by efficient problem solving, critical thinking, and effective abstract reasoning" (Thorndike, 1920). Sternberg (1997), speaking of emotional intelligence, defines human intelligence as the mental abilities necessary to adapt to, as well as to shape and select, any environment. Such noncognitive intelligence, including intrapersonal and interpersonal skills, may be more important for the future lives of students than traditional skills and knowledge taught in schools. Some research studies (Pool, 1997) suggest that up to 80% of a person's success in life is determined by emotional intelligence.

An example of such substantial research can be drawn from the Somerville Study, a 40-year longitudinal study of 450 boys who grew up in Somerville, Massachusetts. According to this study, conventional IQ had little to do with the success they experienced in life. What made the biggest difference were childhood abilities such as being able to handle frustration, control emotions, and get along with other people (Cherniss, 2000).

Another study of 300 top-level executives from 15 global companies found that six emotional competencies distinguished the stars from the average executive: influence, team leadership, organizational awareness, self-confidence, achievement drive, and leadership (Tucker, 2000). Other studies have shown that failure in leadership (attainment below expectation) is frequently attributed to the interpersonal and intrapersonal skills of the leader (Spencer, 1997).

Curriculum personnel in schools should become familiar with these and other studies that suggest that "knowing" is no longer the critical element. They must intercede to help teachers set up the correct environment, which consists of adult nurturing, healthy peer relationships, and sensitive and responsive support services. These climate factors mediate between the academic requirements and the motivation of students to use knowledge and apply skills after schooling. Students need opportunities to problem-solve with others and to examine what worked and what did not in such actions and collaborations. They need such introspection more than they need to master predetermined outcomes that are tested in schools.

Accepting multiple intelligences is the keystone to accepting diversity in our world. It is not difficult to argue that the increasingly global nature of business, the growing reliance on technology, and the cooperation needed to complete global projects call for future citizens who are capable of interacting and relearning. Figure 4.7 displays the nine intelligences proposed by Howard Gardner.

Understanding Learning Styles

Knowing about learning styles can help teachers become more sensitive to the differences students bring to the classroom. Such knowledge can also contribute to the design of meaningful learning experiences that meet student learning preferences. Knowing about learning styles can help teachers help poorly prepared students, those who most often drop out of school, and those who perform poorly on standardized tests.

Three types of style dominance found in the literature include visual dominance, auditory dominance, and spatial dominance. Visual learners acquire knowledge through a broad visual screen that can include teacher body language and facial expression. They prefer displays and illustrations, handouts, and multimedia sources such as the computer. Auditory learners do best in verbal lectures and discussions, by hearing

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what others say. The tone, pitch, and speed of the input are important to understanding. Tactile learners learn best by doing, by completing hands-on activities, and by interacting with the world around them. Such learners crave activity and movement.

Futurists tell us that new information in our lives today doubles about every 5 years. Teachers cannot base their practice on imparting information alone but must help students learn how to learn. Making learning natural by building on learners' strengths will help students become lifelong students of the changing world. Some students, for instance, like their learning concrete, or directed to their senses. Other students, who favor abstraction, like to conceive ideas and use intuition, looking beyond the present. Information may best be received as linear and piece-by-piece, or in chunks, according to the learning style of the student (Claxton & Murrell, 1988). A simple model would place all students in one of four patterns: concrete sequential, abstract and random, abstract sequential, or concrete random.

The bottom line on learning styles is that, when there is a mismatch between student learning style and teacher methods, students may become bored and listless, perform poorly on tests, get discouraged about the curriculum and their own capability, become hostile or unresponsive, and even drop out. A curriculum, even one teaching to a standards-based format, can be varied in its presentation format.

Curriculum Differentiation

Curriculum differentiation is a broad idea that addresses the need to tailor the classroom environment and instructional practices to create a unique learning experience for each child. This adaptation might include deleting material that is already mastered from the curriculum, adding content or skill practice to the existing curriculum, extending enrichment activities, allowing early entry into study areas, or writing units for groups of students with similar needs. Altering the environment or the process of learning, modifying the content, and tailoring evaluation products all would be considered differentiation.

The logic of differentiation can best be understood in terms of the range of learning in a single classroom. According to the rule of thumb, there is 1 year of range for each year in school (i.e., a 6-year range by sixth grade.) A typical seventh grade could have near nonreaders and college-level readers. A differentiated classroom seeks to tap into the readiness level, interests, and learning profile of each student with the goal of maximizing achievement. This strategy is quite different from insisting that all students master minimal-level skills and demonstrate them on a standardized test.

Tomlinson (1999) lists four characteristics of a differentiated classroom: Instruction is introduced at the conceptual level, with several avenues to mastery; assessment is flexible and found within the curriculum; grouping is flexible and changes as tasks change; and students are active participants. Instruction is characterized by abstraction, complexity, variety, and flexibility. In the classroom, one may see multilevel texts, learning contracts, group investigation, Internet use, and interest centers.

Is there a conflict between this type of teaching and standards? Most standards are not finite points to be memorized but consist of skills such as problem solving or using information. These skills can be demonstrated at many levels of competence and therefore can be learned at many levels of abstraction. There is simply no evidence that treating all students alike promotes achievement or standards mastery.

Cooperative Learning

Interacting with others cooperatively is an obviously needed skill in the present century. Work, communication, travel, and education all demand various forms of cooperation. The cooperative learning methodology found in schools since the 1980s is an invaluable tool in the age of standards-based education. As a method, cooperative learning is a carefully structured procedure in which students are held accountable for individual contribution to a group project. Various designs teach that the group as a whole is stronger than the sum of its individual members. Positive interdependence is structured by having mutual goals, shared resources, and assigned roles.

Examples of skills taught through cooperative projects are joint planning, decision making, deferring judgment, consensus building, listening, formulating good questions, learning to ask for help or give assistance, giving and receiving directions, and sharing materials. All these skills are needed in the everyday work world.

Supplementing intellectual growth with both social and personal development pays long-term dividends in knowledge utilization. Group assignments, for instance, help students combine prior knowledge with new knowledge, and re-form knowledge based on new input.

The various common models of cooperative learning such as jigsaw, group investigation, think-pair-share, or teams-and-games allow individual student learning styles to be integrated into the classroom. Research by Slavin indicates that simply grouping the middle and the upper classes of students will produce achievement as high as that achieved by the upper-level students alone (Slavin 1991).

Interdisciplinary Learning

The explosion of knowledge, increased state mandates for specific information to be taught, concerns about curriculum relevancy, and the lack of meaningful connections among school subjects have produced an artificial curriculum in schools. Interdisciplinary learning can provide a context for standards-based instruction. Global interdependence and the interconnectedness of complex systems compel curriculum leaders to find some way to pull these disparate elements together.

Interdisciplinary learning, sometimes called *integrated study*, occurs when students explore knowledge as related to certain aspects of their environment. Cutting across traditional subject areas and organized around real-life themes, the curriculum is meaningfully associated with the broad goals of education. Such content-rich and skill-rich curricula develop a learner's power to create new models, systems, and structures. Interdisciplinary instruction prepares students for lifelong learning.

Problem-Based Learning

Schools are moving the curriculum toward the application of knowledge using problem-based learning (PBL). These curricula purposefully create scenarios and ill-structured problems based on desired curriculum outcomes (skills, knowledge). The student is led to actively define the problem and construct potential solutions.

Effective problem solving is a goal of almost every standards-based document (SCANS, for example), and most district goal statements allude to the need for critical-thinking and problem-solving skills (California Frameworks in Math and Science).

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Producing effective problem solvers in the new information age is a primary goal of education.

Students working in PBL environments learn to define problems clearly, develop alternative hypotheses, access and evaluate data, alter hypotheses to accommodate new data, develop solutions that specifically fit problems, and so forth. The Internet is a perfect connector of the problem and the information that can serve as a solution. The imperfect problems, and the imperfect solutions developed by students using PBL, mirror the real world in which we live.

Mentoring

Mentoring programs come in all shapes and sizes, with the most common being a way of assisting poor learners in elementary and middle schools. Another is to have adults as work partners in a problem-based curriculum. Adult mentors can provide a time perspective to tasks as well as involve the community with the school and its students.

The world outside school operates much differently than that inside a school. Real-world problems and solutions are often moral dilemmas calling for choices and compromise. The real world is more technological than the school world and a lot more interdependent. Values often define choices in the real world, and such values are often the result of long-term experience.

Mentors who have undergone training are usually good listeners. They can dedicate time to helping students see relationships, and they serve as extensions of the student into the outside adult population. They are usually willing to share their life experiences and are sometimes open to learning new things themselves. Most mentors like young persons, and they are volunteering their most valuable commodity—time.

Service Learning

New on the scene is something called *service learning*, which in another time might have been called *community work*. Service work connects classroom learning to real-world experiences and makes students more aware of their surroundings. Research suggests that service learning can make a student more altruistic and caring. The development of interpersonal skills through service-learning projects cannot be overstated. Research suggests fewer disciplinary referrals, higher trust of adults, and a greater acceptance of cultural diversity (Billing, 2000).

There is significant evidence to suggest that students who participate in service-learning activities show gains on achievement tests in reading and basic skills and earn higher grade point averages. Schools using service learning on a regular basis report higher attendance and stronger student motivation. The impact on communities where service learning has become part of the curriculum is positive. In these environments, students are perceived as valued resources and contributing members of the community.

In summary, curriculum work in a standards-based era is not just about high-stakes testing. Knowledge acquisition or skill development alone is not adequate preparation for the rapidly changing world of the 21st century. Your author believes that the role of curriculum workers is to enliven state-mandated or national standards curriculum by working directly with teachers in the classroom. Accepting the notion of multiple intelligences; understanding learning styles; differentiating curriculum delivery; employing cooperative learning in classrooms; using interdisciplinary teaching,