



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
2001 Volume VI: Human Intelligence: Theories and Developmental Origins

Introduction

The study of intelligence is as old as psychology itself, beginning with studies of mental speed by Sir Francis Galton, a cousin of Charles Darwin. After more than 100 years of investigation, and thousands of empirical studies, there is still not strong agreement on what constitutes the essential elements of a theory of intelligence, and how best to measure it. Conventional definitions of intelligence typically include reference to abstract reasoning ability, capacity to acquire knowledge, and problem solving skill. However, there is continued debate as to whether such definitions are broad enough to capture all that it means to act intelligently. Debate is also provoked by those who take unpopular and controversial stances on the heritability of intelligence, racial differences, and by those who mistakenly imply that a person's worth can somehow be embodied by an IQ score. The traditional view focuses on intelligence as a single entity that can be measured by any number of reliable mental ability tests. Other viewpoints have gained popularity in recent years. Most influential are those that posit multiple independent sources of intelligence. Some of these theories have growing empirical support; others are do not, and are based on anecdotal evidence and common sense approaches to parsing the human ability landscape. The most recent development to gain popularity concerns social and emotional intelligence as distinct from cognitive abilities, but equally important for real life decisions and successful functioning in work, social and family groups.

This seminar provided a historical overview of the development and growth of intelligence testing in the US, and covered the major theoretical models of intelligence. The traditional theory of intelligence posits a general factor of intelligence (g) that can account for a variety of what might appear to specialized skills and talents. The notion of a unitary g factor was discussed in depth, as there is a longer tradition and more research evidence to support its existence and predictive value than competing theories. Sternberg's Triarchic Theory of Intelligence and Gardner's Theory of Multiple Intelligences were each examined in detail. Both of these theories offer attractive features not captured by g theory. Sternberg's theory postulates three rather independent types of intelligence analytic, creative and practical. There is a small but growing body experimental evidence showing that each facet of intelligence is statistically independent, and able to predict important school and real life outcomes. Gardner's theory holds that there are not less than seven different types of intelligence. His theory is especially attractive for he gives weight to a social-emotional intelligence and various types of creative intelligences. His theory has been widely disseminated, especially in the school systems. However, from an objective point of view it is disappointing that there is still no empirical work that validates his ideas. Discussion of these three theories was woven into all aspects of the seminar, including discussion of the brain bases of intelligence, the growth and development of intelligence, and programmatic attempts to foster and enhance intelligence in school and special education settings.

The seminar was attended by Fellows with widely different backgrounds and professional roles within their

schools. We had a school social worker, a guidance counselor, four special education teachers, a physical education teacher, a kindergarten teacher, a music teacher, a social studies teacher, a math teacher and a science teacher. Weekly readings covered a wide variety of topics, and discussion was always lively. The group of Fellows was outstanding in the commitment they each demonstrated to changing the lives of their students. The seriousness with which they approach their professional challenges was inspiring. In a very heart felt manner, they grappled with difficult issues, revolving around a center theme: "How can we foster the native skills and intelligence that often remains locked within our students?" Not surprisingly, Fellows were much more attracted to theories of intelligence that suggested that human ability is multifaceted, and tractable to educational interventions. Thus, Fellows were nearly unanimous in their dislike of any notion of a general factor of intelligence, and they gravitated toward Sternberg's and Gardner's theories. Both of these theories offered Fellows new ways of looking at the children they teach, and offered insight into how to foster their students' intellectual and personal growth. The diverse backgrounds of the teachers necessitated a dash of creativity in order to apply the content of the seminar readings and weekly discussion to the development of their individual curriculum units. The result is a collection of units that is broad ranging. However, the units also have shared characteristics that permit clustering into three groupings.

One set of units is tied together by their shared focus on enhancing self-knowledge (intrapersonal intelligence), a critical ingredient to school and life success. This approach is perhaps best exemplified by Ms. Pollock's unit entitled "Getting to know yourself: Developing and accessing intrapersonal intelligence among early adolescents." Ms. Pollock describes current theories of emotional intelligence and creates a unit designed to increase self-awareness and intrapersonal intelligence among middle school students. Her approach utilizes experiential techniques in a small group setting. Ms. Wooding's unit ("Self fulfilling prophecy in African American Students: Exploring African American Achievers") also exemplifies this approach. Her unit teaches the accomplishments of several prominent African Americans and uses activities designed to enhance a positive self-image among her students. In this group are also the units of Mr. Adebayo ("Teaching of Awareness of Human Development") and Ms. Beasley-Murray ("A cultural interpretation of intelligence"). Mr. Adebayo writes on the importance of regulating and nurturing one's body through stress reduction and adequate sleep in order to be an effective learner. Ms. Beasley-Murray uses the classic *Of Mice and Men*, as well as other books and movies, to raise highly provocative questions regarding how different people define and conceptualize intelligence, the role of cultural expectations regarding who is perceived to be intelligent, and the role of self-fulfilling prophecies. Ms. Coss's unit ("Developing and assessing the intelligence of a kindergartner: A practical approach") emphasizes increasing children's learning by capitalizing on their own innate desire to learn. She develops a well-articulated set of ways for early childhood educators to operationalize many of the theories and of early learning (e.g., teacher-centered versus child-centered instruction) and she discusses constructivist models of learning.

A second thematic grouping of units concerns enhancing student performance through improved attention, focus and concentration during the learning process. Ms. Baker exemplifies this theme in her unit on "Quiet time: An environment for school success." Her unit discusses Eastern philosophical approaches to intelligence, and effectively argues for the value of meditation and quiet self-reflection for reducing stress and enhancing the learning process. Mr. Vollero's unit ("Nurturing the body and mind in physical education with Mozart") provides a critical review of the literature on the "Mozart effect", the proposed relationship between listening to classical music and increased intelligence. He provides many ideas and techniques for incorporating music in the learning environment as a means toward focusing the attentional resources of the student for enhanced learning. Similarly, Ms. Canzanella writes on "The musical learner: Rhythms and Reading", wherein she effectively builds the case for using music (particularly rhythm) as a mental organization tool to help children master many of the skills underlying learning to read and compute. Finally, Mr. Echter discusses rapport-

building techniques as an essential part of the learning relationship between teacher and student in his unit (“Working with children’s powers, not their handicaps”). Mr. Echter provides many examples of how games and humor can be used to break down resistance, to tap inherent motivations, and to defuse children’s fear of failure.

A third area revolves around the theme of teaching multiple intelligences and student awareness of their many talents. This is exemplified by Ms. Trapp’s unit on “Multiple intelligences: The learning process in our students,” and by Mr. Merritt’s work entitled “A multiple intelligence approach to the physiology of the brain and how middle school students learn.” Mr. Merritt and Ms. Trapp nicely spell out the details of Gardner’s theory of Multiple Intelligence and then use aspects of this in their curriculum exercises. One aspect of Gardner’s theory concerns bodily-kinesthetic intelligence. Ms. Bellonio effectively integrates this theme in her unit on “Multi-sensory manipulatives in mathematics: Linking the abstract to the concrete.” She presents a very well written argument for the use of manipulatives as an effective way of teaching numeracy and basic mathematical concepts.

Together this group of curriculum units touches on many of the emerging conceptual and theoretical issues in the field of Intelligence. Each unit offers many helpful teaching exercises and goes to great lengths to offer suggestions for practical teaching materials. The units all integrate theory into practice and they each should offer other teachers many valuable ideas and approaches to their own classrooms and curricula.

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