Gifted Education: An Issue of Equity

Barbara Clark

In any discussion of gifted education, it is well to define the terms. There have been for decades — and continues to be — widely differing ideas of who the gifted are and the need for special provisions for their education. Some of this diversity of thinking are honest attempts to find the most effective ways to nurture this atypical group of students. Some thinking is misinformed and based on myths long ago laid to rest, or on old data now made obsolete by newer, more accurate, information. However, unfortunately, some of the negative feelings expressed regarding the education of gifted students reflect hostility toward this population and a misguided definition of egalitarian principles. It will be the thesis of this article to inform, update data, and show the critical need for appropriate education of gifted individuals.

Understanding the Concepts of Intelligence and Giftedness

To understand why special education provisions are necessary for the students we call “gifted,” we must understand the etiology of giftedness. Until the 1960s, it was believed that human intelligence and its expression were somehow inborn, innate. Those who were considered gifted, talented, average, or slow were thought to have inherited their abilities and whatever happened to them could not change their endowment. Education was intended only to develop a limited set of skills, and to dispense information in order to maintain the existing culture. There was no thought that the experiences of individuals could directly and significantly change their endowment.

Then a group of brain researchers from the University of California at Berkeley found that stimulation from the environment actually changed brain development. Later researchers continuing this inquiry with more sophisticated technology made discoveries that must forever change the old view of the inheritability of intelligence and the limitations of human development. From animal and human brain research, it has been found that individuals can develop more of their innate potential when they are given the opportunity to interact with an appropriately stimulating environment. Later reports show the following biological differences were found to be among the results of that interaction:

- There is an increase in neuroglial cell production within the brain allowing more nourishment and support for the brain's basic cell, the neuron, thereby creating stronger cells.
- This increase in neuroglia increases the myelination of the axon (the appendage to the neuron that carries the impulse to the next cell) allowing impulses to be sent with more force, more quickly.
- The neurons become biochemically richer, allowing for more complex patterns of thought.
- There is an increase in the amount of dendritic branching and the number of dendritic spines (appendages to neural cells that allow transmission of information/activity within the brain) thus
increasing the potential for interconnections between neurons.
- There is an increase in the number of synapses and in the size of the synaptic contact, allowing more complex communication within the system.
- More use is made of the activity of the prefrontal cortex of the brain allowing more future planning, insightful thinking, and intuitive experiences.

Thus, the critical role of the environment in the development of the brain and its intellectual functions has been clearly established.

Our old beliefs caused us to see many limits to the development of intelligence and gave us the idea that the level of performance we call "gifted" was possessed by only a few chosen individuals. We believed that genetics limited our potential ability. Our genetic endowment no longer seems to be the limit we thought as research in this area continues to find adaptability and change possible within genetic programs. If appropriate environments interact with inherited structures from the beginning, the possibilities for actualization of potential are awesome and the extent of human ability unknown.

We can no longer be comfortable in the belief that human development is simply reflecting the limitations of inheritance. It becomes evident that all individuals have awesome amounts of potential built into the hundred billion brain cells with which they are endowed. Their unique genetic program is not a limit, but, rather, a guide to what they may become.

We used to believe that age limited our intellectual growth. It was expected that intelligence would plateau around 18 years of age; and, at age 45, a slow and steady downward curve toward senility would occur. Buell and Coleman have since shown that the brain continues to allow dendritic growth in response to environmental challenge at least into the 80th year of life.

The limits to development of human potential for intellectual growth are far less than we believed.

Educators now have an exciting opportunity. It may be only our belief systems -- and the practices that derive from them -- that provide the limits of intelligence and the actualization of human potential. Equity of opportunity to develop each individual's uniqueness and intelligence, to come closer to expressing their unknown potential, is surely the right of every individual.

A New View of Giftedness

From the perspective of the new information, "giftedness" — the label we now give to high levels of intellectual performance — must be seen from a different view. It is clearly a biologically rooted concept, a label for a high level of intelligence that results from the advanced and accelerated integration of functions within the brain. Such advanced and accelerated function may be expressed in many ways, including academic aptitude, cognitive ability, creativity, leadership, or ability in the visual or performing arts. To help us see the multifaceted nature of this interactive process, Harvard psychologist Howard Gardner labels these varied expressions of abilities as multiple intelligences: linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, interpersonal, and intrapersonal. He recently concluded that there are, undoubtedly, other abilities — such as spiritual-aesthetic — that he has yet to study.

Others are studying these areas of ability and find it useful to arrange them using the brain's organization of functions: physical, emotional, cognitive, and intuitive. We now know that the integration of these major areas of brain function allows the brain to process more effectively and efficiently. For some students, the expression of giftedness may take untraditional forms and be difficult to discover. But, regardless of how it is expressed, such advanced brain growth will manifest itself in more effective and efficient use of brain function. Accelerated thought processing, complex problem identification and solution, use of abstract thought that is often unusual and...
diverse, and insights of a useful and profound nature are outcomes directly related to the change in brain function. Such information is important to our understanding of the optimal development of intelligence, and the definition of giftedness. Learning and teaching are dramatically changed by these data.

Most important to note, all of the data now available conclude that intelligence is a dynamic process. It begins with the interactions experienced by the fetus and continues its growth throughout life. Intelligence is not, as was once believed, a static and fixed attribute. The brain, researchers tell us in regard to its functioning: “Use it, or lose it.” Human intelligence must be challenged if it is to develop to the level we now call “giftedness.” When individuals are challenged by appropriately difficult tasks, they seem to rise to the occasion. If the task is too easy, the neural responsiveness will be reduced. All individuals have a right to an appropriate challenge, to a stimulating environment, to the chance to become whatever they are capable of being.

Defining the Gifted Student

The gifted student can now be defined as an individual with advanced and accelerated intellectual development that may be expressed through the eight Gardnerian multiple intelligences; again, linguistic, logical-mathematical, spatial, bodily-kinesthetic, interpersonal, intrapersonal, and spiritual-aesthetic. The identification of such individuals must include their opportunity to have experiences in all of these areas, and in settings appropriate to the individual’s cultural heritage. Observation and/or assessment of high potential in any of these areas would be the basis for differentiated programs of an advanced and accelerated nature, based on the individual’s need.

The Meaning of Equity

Throughout our nation, the standard has been raised to champion the cause of equity. For decades, various groups have found it necessary to add their voices to this call as, justifiably, each person demands the right to become all her or his talent will allow. In a democracy, we are promised that no barrier will be raised to our pursuit of health, happiness, liberty and justice. We recognize that the fullest achievement of each of us must be encouraged, not only for the individual, but for the benefit of all.

Many times we have fallen short of our goal. We have allowed skin color, religious ideals, personal beliefs, even sex stereotypes, to become blocks to the highest development of the ability of some of our citizens. In this decade and into the next, we are well advised to focus on remediying this problem — to find equity for all. It is interesting that the most able should have to be among those who have need for equity.

But, let us be sure we agree on the meaning of equity. Having equal opportunity does not mean having the same opportunity; it means having experiences available that are uniquely appropriate for each individual. It promises that whatever your talent or interest, whatever your skill or ability, you will have every opportunity to develop that uniqueness to its fullest extent. Offering a talented musician and a brilliant scientist the same experience is not equity; offering them equal opportunity to pursue their individual goal is.

To really understand the depth of the equity issue, we must again recall the new information on the development of human potential. With the limits of development less rigid than previously believed, we must see that all children have equity of opportunity.

Equity and the Gifted Student

Unfortunately, schools — as they are now organized — are not providing the equity of opportunity students need to meet their varied and unique needs. Gifted students, with needs that range far beyond the age-graded curriculum, are the least served in the school population. Attempts are made to provide services for the average learner, and many special programs are in place for slow
and handicapped learners. For the gifted among us, however, the belief remains that they should be able to succeed on their own; that no challenge is needed to aid in their growth.

We know now that giftedness develops from an interactive process that involves a stimulating environment bringing forth innate capacities and processes. We either progress or regress. Just to retain giftedness — not to mention furthering the potential — gifted students must participate in programs appropriate to their level of development. We must make provisions for them to use their abilities. Neither we nor they can afford to lose their abilities.

Our political and social system is based on democratic principles. The school, as an extension of those principles, must not refuse to allow gifted children the right to educational experiences appropriate to their level of development. We do not ask retarded children to work in the same programs and to progress through the same curricula as the more typical learners. How, then, can we justify holding back the gifted students to the pace and level of the more typical student? As we have seen, the more intelligent the individual, the more rapid will be the processing of her or his brain, the more complex will be the thought process. How can the same curriculum meet such a wide range of needs? For equity of opportunity, a variety of learning experiences must be available at many levels so that all learners may reach for their potential. Each individual has the right to learn and to be provided opportunities and challenges for learning at the most appropriate level and pace that allows growth to proceed most efficiently.

When equity of opportunity is not provided, there is evidence that students become bored, frustrated, angry, and feel discouraged and diminished as persons. For at least half a century, gifted students have been viewed as the largest group of underachievers in education. Subsequent research shows that they still lack educational care and the problem of underachievement has worsened. And, slightly over one-half of the possible gifted learners in the United States are reported to be receiving education appropriate to their needs.¹⁹

When the needs of the gifted students are considered — and the educational program is designed to meet these needs — these students make significant gains in achievement, and their sense of competence and well-being return. Gifted students in special programs learn to work more efficiently; they develop problemsolving skills, and see solutions from many viewpoints. They experience concepts and materials in a dynamic relationship, and they can use their vast amount of knowledge to serve as a background for unlimited learning.

Contributions to society in all areas of human endeavor come in over-weighted proportions from this population of individuals. Society will need gifted adults to play far more demanding and innovative roles than that of more typical learners. We in education must give them the opportunity to develop their creative and innovative abilities, the skills for re-creation — not just participation — in their society, and the motivation for the invention — not just the consumption — of ideas.

The Mission of Gifted Education

With the new view of the malleability of the human brain, and its impact on the development of intelligence, the mission of gifted education becomes twofold:

1. Gifted education must assure the provision of appropriate and challenging educational experiences to students who, because of advanced and accelerated intellectual development, are not now served by the educational system.

2. Gifted education must provide the leadership in translating research from all areas that relate to human learning into implementation of educational experiences that can optimize the intellectual potential of all students.
A variety of program options must be available to provide for advanced and accelerated development in all areas of ability; therefore, gifted programs with a continuum of services would be the most effective. A continuum of services model would include: regular classrooms with clusters and/or pullout classes; individualized classrooms with clusters, cross-grading, and/or pullout classes; adjunct programs, such as mentorships, independent study, summer school sessions, resource rooms; special classes; and special schools. The level of placement would be determined by the level of need of the individual student. All programs would allow differentiation, individualization, flexibility of grouping, variety of materials, continuous progress, and pacing appropriate to the individual’s need. The Richardson Study\textsuperscript{20} supports the concept of a wide range or continuum of services in providing for gifted learners and recommends ways to optimize programming.

If we are to meet the needs of gifted learners, we must have a planned, coordinated, and continuous program. This program must be open and responsive to the changing individual, while providing continuous challenge and an adequate diversity of content and process. While we may draw from numerous models to deliver the services to the gifted learner, our own community, our parents, students and staff must make decisions of structure and intent. While some goals can be generalized, others must be specifically set by the teacher, the student, and the parent in a cooperative effort.

**Summary**

To understand why gifted education is so essential not only to those students who function at this level of performance, but to all of society, it is important to understand the impact of current research in the neurosciences on the concepts of intelligence and giftedness.

The term "gifted" refers to individuals who are functioning, or who show promise of functioning, at high levels of intelligence. Intelligence is defined as advanced and accelerated development of brain function. It is a composite of the human functions of cognition, emotion, intuition, and physical sensing, and can be expressed in a variety of ways, including outstanding cognitive ability, academic aptitude, creative behavior, leadership, or ability in visual and performing arts. Intelligence includes the capacity for insight into complex relationships and for the processes of abstract thinking and adaptability in problem-solving.

The concept of intelligence used in this article is based on the principle of interaction, considering both heredity and environment as necessary components. The interactive concept of intelligence is seen as critical to an understanding of the development of gifted individuals. While genes provide programs for individual potential, they do not guarantee this potential will be achieved.

The needs of the gifted students and the resources of the school and the community should be considered when deciding what program structure to use in any gifted program. A continuum of services is best and allows the flexibility and range necessary in meeting these unique needs.

Equity is a current concern among many groups, including those working with the underserved population of gifted learners. Equity refers to equal opportunity, not the same opportunity. The educational experience must be appropriate to the needs and abilities of all learners, including the gifted — if optimal development is to occur. As a learner is different, so must the curriculum differ; the pacing, the content, the depth, and the complexity.

Healthy, well-balanced, highly functioning, intelligent human beings should be the outcome of our educational process. Their uniqueness must be encouraged; the development of their potential must be supported. Appropriate education that achieves these goals is the right of all children. Gifted education seeks to assist in accomplishing these goals. It is an issue of equity.
**FOOTNOTES**


2. Rosenzweig, *ibid.*


**REFERENCE**


Barbara Clark is Professor, Division of Special Education, California State University, Los Angeles, where she is Coordinator for Graduate Programs in the area of gifted education. Clark received her BA in education from Wichita State University, MA in special education, learning handicapped, and EdD in special education, gifted education, from the University of California at Los Angeles, UCLA. Dr. Clark is Trustee and Director, Center for Educational Excellence for Gifted and Highly Able Learners; Second Vice-President, National Association for Gifted Children; Member, Board of Directors, and Past President, California Association for the Gifted; and, United States Delegate to the World Council for Gifted and Talented. She was named California State University, Los Angeles, "Outstanding Professor, 1978-79."