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ABSTRACT

This paper presents a study of two intellectually gifted students (ages 6 and 14) who have cerebral palsy and are unable to communicate orally. Results of participant observation, interviews, and document analysis revealed that: (1) gifted students who have cerebral palsy and do not speak exhibit indicators of cognitive ability that are similar to those exhibited by nondisabled gifted students, though the expression and recognition of these indicators are inhibited by communication barriers; (2) classroom atmosphere, structures, and instructional activities differentially impact the intellectual development of gifted students with physical disabilities; (3) gifted students with physical disabilities are able, with some modifications, to integrate and succeed academically and socially in regular classrooms; and (4) many barriers must be overcome by gifted students with physical disabilities in order to reach their goals. The study demonstrates the importance of looking beyond the obvious external manifestations of intellectual talent and illustrates some unique behaviors that may appear given appropriate circumstances. (Contains 22 references.) (JDD)

The School Experience for Gifted Students with Cerebral Palsy

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This paper will present the results of a study of intellectually gifted students who have cerebral palsy and are unable to communicate orally. The objectives of the study were to discover indicators of giftedness in these students, to describe instructional techniques and learning situations which were particularly effective for them, and to provide for them a forum in which their lived experiences could be given voice.

Theoretical Frameworks

The theoretical frameworks of the study were phenomenology and symbolic interactionism. The phenomenological aspect was particularly fruitful in elucidating the perspectives of the students, their parents, aides, teachers, and classmates. Data gathered from each source was considered independently in order to construct meaning from differing vantage points. The particular value of a phenomenological approach in this study was the discovery of overarching themes or essences central to the experience of all participants. Only by considering each participant's perspective in this manner could the full impact of the experience of simultaneous giftedness and disability be recognized.

Symbolic interactionism provided a complementary framework. By considering the constructions of the same incidents by various participants, shared meanings became evident, as did instances in which meanings for some participants were in direct opposition to meanings for others. This was crucial to understanding the experience of a child who does not speak, since it is often the case that the meanings constructed for him by others are not the meanings he intends.

Review of Related Literature

Two major problems exist in providing appropriate educational services for gifted students with physical disabilities who have difficulty speaking: identification of the student's need for services, and programming which addresses both cognitive and physical needs.

Identification of students who are gifted and physically disabled is problematic. Neither of the customary identification methods--standardized tests and observational checklists--is adequate, without major modification, for discovering the abilities of these children. Children whose speech or language is impaired cannot respond to tests requiring verbal responses. Children with limited mobility are unable to take nonverbal or "performance" tests requiring hand manipulation. In addition, limited life experiences due to impaired mobility may artificially lower scores (Hokanson & Jospe, 1976; Whitmore & Maker, 1985). Because gifted children try to compensate for their weaknesses, and handicapped children often hide special abilities in order to "fit in", they appear closer to "average" on both dimensions (Hemmings, 1985). Handicapping conditions may slow the pace of cognitive development;

furthermore, the students may not express their cognitive abilities in ways which are recognized by teachers. The amount of dependence on others necessary for these children to cope with the effects of their handicaps causes them to appear relatively more immature than teachers would expect of gifted children. Handicapping conditions may also limit their ability to produce the quantity of work expected of high achievers (Whitmore, 1986). Intellectual abilities also may not be displayed due to lack of opportunity, since the student's educational placement may not be sufficiently stimulating or may not include content conducive to the expression of higher cognitive abilities, including problem solving or creative thinking abilities (Whitmore, 1981, 1986). In summary, Karnes and Johnson (1991) identified barriers to identification of gifted students with disabilities in the following categories: inappropriate identification procedures, faulty expectations, developmental delays, gaps in information, lack of models and research, gaps in training of professionals, failure to disseminate information effectively, lack of supportive equipment, lack of appropriate career counseling, and inadequate funding for education. For these reasons, current identification practices for gifted programs often overlook these students who do not fit the mold of the stereotypical gifted child.

There are a number of psychometric instruments which may be appropriately utilized by psychologists, with some adaptations in methods of administration. Since it is desirable to use a variety of formal and informal measures to identify students for gifted programs, informal measures such as observational checklists must next be considered. A number of lists of characteristics of gifted children may be found in the literature (e.g., Renzulli, Smith, White, Callahan, & Hartman, 1976; Tuttle, Becker, & Sousa, 1988). These lists of characteristics typically include items such as advanced vocabulary, wide base of knowledge, quick mastery and recall of information, and greater ability to conceptualize and think abstractly. These characteristics may or may not be found to a similar extent in gifted students who are disabled, due to the limitations on experience imposed by the disability and to difficulties in receptive and expressive language resulting from the disability.

Characteristics of gifted students with handicapping conditions often include the following: superior memory, outstanding reasoning powers and problem solving skills, exceptional perseverance, and high levels of curiosity (Whitmore, 1986).

Characteristics specific to gifted students with various disabilities have also been generated, mostly from retrospective studies and theoretical deduction (Pledgie, 1982; Whitmore, 1981; Whitmore & Maker, 1985; Yewchuk & Bibby, 1988). Students with physical disabilities have the same range of ability as in the general population, although in the presence of some conditions the frequency pattern of IQ's may be altered (Maker, 1977). Gifted children with physical disabilities often learn or develop compensatory skills that enable them to achieve success. They often display creativity in finding alternate ways of communicating and accomplishing tasks. They may have an impressive store of knowledge. They frequently have superior memories and exceptional problem solving abilities. They set long-term goals and display persistence and motivation to achieve. They are often severely self-critical and perfectionistic (Whitmore & Maker, 1985). However, physical disabilities limit achievement until coping skills are learned (Whitmore, 1986; Whitmore & Maker, 1985). The disabilities disrupt the usual pattern of development, and

limit experiences with the environment. Reduced sensorimotor and perceptual motor learning experiences lead to language and cognitive skills not based on motor experiences (manipulation). This in turn may lead to some difficulties in cognitive development and in dealing with abstractions. Also, lack of experience with the environment leads to a limited opportunity to observe and imitate models (Hokanson and Jospe, 1976).

A key point is that these characteristics have not been systematically related to actual observations of children but rather have been generated retrospectively by adults reflecting on their childhood experiences.

The problems in recognizing indications of cognitive ability and nurturing that ability in children who are disabled are geometrically increased when the child is unable to communicate orally. Language is our most reliable informal indicator of giftedness, since it is a revelation of thinking (Whitmore, 1986). Children who do not speak cannot respond to a teacher's questions, explain their thinking processes, satisfy their curiosity by asking questions, or display leadership abilities in conventional ways. The pattern of their interactions in the classroom is far different from that of children who speak. They must rely on others (human or mechanical) to interpret for them.

Once the intellectual capability is recognized, the next step is to provide appropriate educational experiences. Mauser (1981) stated that schools have a twofold function in regard to gifted children with disabilities: to provide intellectually meaningful opportunities allowing them to learn and achieve academically, and to provide affectively meaningful experiences allowing them to develop understanding of themselves, both individually and in relation to other people. The overall goal of an appropriate education program might be conceptualized as the development of potential for exceptional achievement (Whitmore & Maker, 1985; Pledgie, 1982). In sum, the program should simultaneously capitalize on strengths and remediate weaknesses (Karnes & Johnson, 1991; Pledgie, 1982).

A mainstreamed setting with opportunities to interact with nondisabled gifted children has been widely recommended (e.g., Hemmings, 1985; Maker, 1977; Whitmore, 1988; Whitmore & Maker, 1985). Access to gifted programs should be considered an educational right (Corn, 1986).

The educational environment should provide opportunities for the child to engage in active inquiry, to be creative and self-expressive, to share interests and knowledge with others, and to be an active member of the classroom, including sharing in classroom chores. The attitude that diversity is valued should prevail in all activities (Whitmore, 1982).

Within the curriculum there should be planned experiences for cognitive development. Sensory experiences using noninvolved modalities and opportunities with manipulatives provide the basis for expressiveness and abstract thinking. The Taba Concept Development Strategy has also been effective, as has the creative problem solving approach (Whitmore & Maker, 1985).

Learning materials should be interesting and challenging, and should satisfy the child's desire for humor and fantasy (Whitmore, 1982). Materials

allowing opportunities for higher level thinking, such as analytical and creative problem solving skills, have been recommended (Hemmings, 1985; Whitmore & Maker, 1985). The level of difficulty should allow for success without excessive repetition. The structure of the materials should promote efficiency in learning. Pairing weak skills or knowledge areas with strengths will make the remediation process pleasant. A balance between science, humanities, and art activities that stimulate creativity and problem solving, and basic skills training that involves memory, drill, and practice has been recommended (Whitmore, 1982). However, basic functions like rote memory should not be overemphasized (Whitmore, 1981).

The teacher must be flexible yet consistent enough to address intellectual needs while developing areas of weaknesses (Whitmore & Maker, 1985). The teacher should demonstrate consistently high expectations of the gifted/disabled child (Maker, 1977). Additional teacher behaviors posited to encourage the development of gifted potential have been widely discussed in the literature (e.g., Feldhusen, 1985; Feldhusen & Hansen, 1987; Hultgren & Seeley, 1982; Raths, Wassermann, Jonas, & Rothstein, 1986). Central to these behaviors is maintaining a facilitating atmosphere by listening to students and accepting their ideas, appreciating individuality, encouraging open discussion, promoting active learning, nurturing confidence and independence, and promoting higher level thinking skills. While there is consensus that these are valuable for gifted students in general, these techniques have not been studied for their particular applicability to gifted students with disabilities.

Systematic, long term study of the interactions between the children's giftedness, their disabilities, and their classroom environments has not been conducted. Since these children and their situations are highly individualistic, and since the entire context of the educational setting is of interest, qualitative case study methodology is appropriate.

Data Collection and Analysis Strategies

Qualitative research methodology was employed in this study. Data was gathered through extensive participant observation (spanning two and one-half years), interviews, and document analysis. Participant observation occurred in classroom situations, in therapy sessions, and at home. Each session was documented through field notes and either audiotapes or videotapes. Interviews were conducted with the primary participants (with the assistance of an interpreter of the communication system), parents, personal aides, classroom teachers, therapists, and classmates. Document analysis involved perusal of student work, news articles relating to students, records of psychological and achievement evaluations, letters pertaining to or written by students, and parents' written reflections about their children. Supplementary data were gathered from observations of similarly disabled children in various educational settings and interviews with their parents, and from published works written by persons with similar disabilities.

Data were analyzed individually for each participant using the techniques of analytic induction, open coding, and constant comparison. Following this single case analysis, a cross-case analysis was conducted in order to investigate similarities and differences.

The Participants

Each of the two primary participants will be briefly described. When the study began, Jan was a six-year-old first grader placed in a first/second grade gifted class. He reached the ceiling score on the Peabody Picture Vocabulary Test and the Peabody Individual Achievement Test before entering school, and skipped kindergarten. He displayed the ability to read at age 3, much to the surprise of his parents. He communicated mainly through body motion and spelling on an alphabet board. Jan was able to express himself through a rich vocabulary, and has written beautiful poetry.

Jan's parents are both highly educated professionals employed by universities, and the socioeconomic level is estimated at middle to high-middle class. They are committed to helping Jan to develop to the fullest extent possible and have sought out innovative therapy techniques to help him. Jan's mother has served as a parent representative on a state advisory board for children with disabilities.

Brad was fourteen years old and a high school freshman when he elected to participate in the study. He was enrolled in a regular education program and has taken a full course load, consisting of college preparatory classes and general education classes. He has been on the honor roll every semester except one in sixth grade. He participated in many extracurricular activities, including managing the basketball team and serving on the student council.

Brad communicated by eye-pointing at an alphabet board or by keying Morse code into a computer. He had almost no use of his hands and no recognizable speech.

During Brad's sophomore year, he became ill and was hospitalized for several months, suffering from pneumonia, bouts of inability to breathe (resulting in a tracheotomy), and a stroke. Brad was unable to return to school and finished his coursework at home under the tutelage of his aide.

Brad's family appears to be of low middle class socioeconomic status. Brad's parents have stressed the importance of education and therapy for Brad, enrolling him in preschool classes, working to have him admitted to a regular classroom, and sending him to special therapy sessions and camps for children with physical disabilities.

Results

Results of each case study are too lengthy to present here; Table 1 presents the major findings in summary form. Four assertions emerged from the analyses:

Assertion 1: Gifted students who have cerebral palsy and do not speak exhibit indicators of cognitive ability which are similar to those exhibited by nondisabled gifted students. However, the expression and recognition of these indicators are inhibited by communication barriers.

Characteristics displayed by the two students are listed in Table 1. It may be noted that these characteristics are consistent with the published lists of traits of gifted students (e.g., Renzulli et al., 1976). However, it

must be noted that the recognition of these characteristics was inhibited by the disability, particularly the inability of the participants to speak. The students could not express curiosity, for instance, until a means of communicating that curiosity was established. Communication similarly inhibited the expression and recognition of nearly all of the other characteristics.

Assertion 2: Classroom atmosphere, structures, and instructional activities differentially impact the intellectual development of gifted students with physical disabilities.

Both students were placed in classrooms with nondisabled students, which was extremely beneficial to both self-concept and academic progress. A relaxed atmosphere in which individuality was valued seemed to enhance the school experiences of the participants. Achievement was emphasized, and some flexibility in methods of completing assignments was allowed. In Jan's case, additional classroom variables which appeared to facilitate his development included individualized pacing and intellectually challenging work. Hands-on experiences and simulations were particularly effective teaching strategies.

Assertion 3: Gifted students with physical disabilities are able, with some modifications, to integrate and succeed academically and socially in regular classrooms.

The two participants integrated into their classrooms both in academic activities and socially. With few exceptions, they completed the same assignments, participated in class activities, and were involved with peers in various types of social interactions.

The main modifications to allow academic integration were the employment of a full-time aide and specialized equipment. These two appeared to be critical for success, especially the aides, who fulfilled many roles with respect to Jan and Brad. Other alterations included shortening or omitting certain assignments which were physically impossible, providing extra time to complete assignments on occasion, and providing individual help.

Social modifications were made by Jan's and Brad's peers. They developed ways of including them in their activities, and in Jan's case, created a way of communicating with him. The peers also made some special considerations in their interactions with Jan and Brad, taking on the role of "helper" in many instances.

Assertion 4: Many barriers must be overcome by gifted students with physical disabilities in order to reach their goals.

Physical, communication, internal, and external barriers existed. Physical barriers included inability to control voluntary muscle action, including walking and writing, as well as serious illnesses which interfered with educational progress. Communication barriers involved the use of time-consuming methods of interacting, sometimes using an unfamiliar code. Another barrier to communication concerned the use of different symbol systems. Understanding the symbol systems is made difficult when some symbols carry the common meaning, others carry no meaning at all but are simply

effects of the disability which are interpreted as symbols, and still others carry meanings different from or even opposite the common meaning.

There are types of symbols other than words. Brad and Jan used many types of body motion listed by Knapp (1980): gestures, body movement, facial expression, eye behavior, and posture. As Knapp pointed out, children with cerebral palsy use body motion differently than do nondisabled persons, and their idiosyncratic movements have meaning only to those close to them. Similarly there may be communicative events which are missed because the intended recipient is "bound by the conventions of what communication ought to be" (Barnett, 1987, p. 124).

The symbol of the body also conveyed faulty impressions. Stereotypical notions of disability interfere with recognition of normal intellect. The disparate interpretation of symbols also extended to the equipment which was used to overcome the disability. Others view wheelchairs and similar devices as substitutes for body functions, representing immobility; to persons who use them, wheelchairs are seen as an extension of the body (Bleeker & Mulderij, 1992) representing movement.

Internal barriers included feelings of frustration and loneliness resulting from the isolation imposed by the disability, and, in Jan's case, a great deal of conflict. Conflict appeared in every aspect of daily life: the struggle to get an education in the face of frequent illness, the constant striving to conquer the body, the skepticism of educators and peers, the frustration at not being able to express one's thoughts with ease. The characteristics noted above, particularly motivation, determination, and goal orientation, are crucial in enabling these students to rise above the conflict and achieve their goals.

External barriers included circumstances beyond the control of the participants, such as attitudes of others and time. In Brad's case an inordinate amount of interference was noted; it seemed that many forces conspired to inhibit the realization of his goals, many of which were related to his illness.

Importance of the Study

The importance of this study for educators is not only in helping them to recognize intellectual talent in students with severe physical disabilities. Nondisabled students also may exhibit talents in nontraditional ways; this study demonstrates the importance of looking beyond the obvious external manifestations, and illustrates some unique behaviors that may appear given appropriate circumstances. Instructional techniques which are advantageous for eliciting intellectual talents have been identified. The essential role of communication in education was made evident, and ways of circumventing disabilities in speech in order to allow self-expression were described. The scientific importance of the study lies in its examination of the educational experience of gifted children with disabilities; the description and analysis of their lived experience is illuminating for education in general, in that the essential qualities of a "good education" may be more clearly delineated. Reflection upon the struggles and successes of these students provides insights applicable to all of us who are engaged in striving to attain our goals.

Table 1. Cross-Case Analysis

CATEGORY	JAN	BRAD
Classroom Context	Relaxed atmosphere/ Students valued Emphasis on achievement Advanced work Individualization	Positive atmosphere Traditional structure
Intellectual Abilities	Early reading ability Advanced academic skills Quickness Sense of humor Maturity Persistence/ Determination Patience Insight Curiosity Ability to adapt Desire for independence	Early reading ability Scholastic success Quickness Sense of humor Maturity Motivation Determination Patience Goal orientation Artistic ability
Feelings	Love of school Frustration Loneliness Desire to be like everyone else	Desire for education (Frustration) (Desire for social interaction) Anxiety
Communication	Pointing (hand and eyes) Facial expressions Moving part of body Oral communication Moving objects	Pointing (eyes) Facial expressions Body language/head movement Facilitation
Barriers	Communication Different symbol system Others' interpretations Stonewalling Time	Communication Different symbol system Uncertainty/ Aide Time

Table 1, continued

CATEGORY	JAN	BRAD
Barriers	Physical	Physical
	Inability to control body	Lack of motor control
	Illnesses	Medical considerations
	Need for therapy	
		Others' attitudes
		Ambiguity of class membership
Accommodations/ Modifications	Aide's Roles	Aide's Roles
	Tutor	Tutor
	Care of physical needs	Nurse
	Communicator	Secretary
	Friend	Friend
	Equipment manager	
		Social liaison
		Provider of extra help
	Equipment	Equipment
		Shortened assignments
		Extra time
		Individual help
Academic Activities	Participation in large group activities	
	Participation in small group activities	
	Same classwork	Same classwork
	Individual choices	Same for everyone
	Benefits from certain activities	
	Omitting activities	Omitting activities
	Extra time	Extra time
	Excluded from special class discussions	
	Visual obstructions	
		Home tutoring
Social Acceptance/ Socialization	Conversation	Conversation
	Concern	Concern
	After school activities	Extracurricular activities
	Help from peers	Help from peers
	Humor	Humor
	Impact on others	Impact on others
	Physical proximity	Separation
	Decreased awareness of equipment/mannerisms	
	Recess	
	Special advocate	
	Teacher facilitated acceptance	
	Celebrate accomplishments	
		Welcoming back
Core Category	Conflict	Interference

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