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ABSTRACT

This literature review examines and integrates research addressing visual handicap and giftedness and provides suggestions for the identification and education of gifted students with visual handicaps. The review addresses definitions of visual handicap and giftedness, characteristics of the gifted visually handicapped child, the problem of underachievement, the importance of braille training, identification methods, special needs, model programs developed, and placement and curriculum. The review concludes with several suggestions and implications for identifying and serving gifted visually handicapped children. (Contains 36 references.) (PB)

The Gifted-Visually Handicapped Child: A Review of Literature

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THE GIFTED-VISUALLY HANDICAPPED CHILD - A REVIEW OF LITERATURE

Ideally, educational program would be individualized, appropriate, and comprehensive. However, in spite of emphases on civil rights and the concomitant mandate of Individual Educational Programs. Large number of children are still underserved and underachieving. Gifted children who are handicapped constitute a sizeable proportion of this population. Research pertaining to the needs of children who are gifted and handicapped is limited (Clark, 1992). The purpose of this review is to utilize and integrate prior research that addresses the unique area of visual handicap and giftedness; and to provide suggestions for the identification and education of gifted children with visual handicaps.

Visual Handicap

Individuals with visual handicap can be identified as those whose normal learning and development is impaired by visual conditions and who therefore, need specific conditions and related services in order to develop their abilities (Whitmore, 1981). DuBose (1979) described nine types of visual dysfunction: (i) refractive errors in the form of myopia or hyperopia; (ii) astigmatism; (iii) amblyopia; (iv) strabismus; (v) cataract; (vi) glaucoma; (vii) retinitis pigmentosa; (viii) retinal detachment; and (ix) macular degeneration. The most common cause

of visual disability is the first type. It is necessary to clarify the visually impaired child's visual dysfunction before implementing any special strategies for identification, placement, and service because different visual dysfunctions impose different challenges in the development of the skills and abilities of children who are visually disabled.

American Foundation for the Blind (1961) provided two sets of definition of the visually handicapped. One definition is based on the concept of measurably diminished vision, and the other is based on educational needs, which distinguish children with visual handicaps into categories of a blind and partially seeing. Obviously, these two definitions are interrelated. For educators however, the definition focusing on educational needs is preferred as it describes characteristics that are helpful in determining appropriate programming (Whitmore & Maker, 1985). The authors suggest the use of visual arc as a measurement index [instead of visual acuity] since it provides information about an individual's vision (including visual field limitations) and how it affects learning. This information can help educators understand more about the abilities of visually handicapped children.

The Gifted

Basically, giftedness is defined as the potential or demonstrated ability for exceptional achievement or unique

contribution in any area of human endeavor (Whitmore, 1981). The United States Office of Education (USOE) provides a definition of the gifted and talented as those who are capable of high performance, identified by professionally qualified persons, and these children require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and society (Khatena, 1992). The USOE categorized the capability of gifted children in demonstrating achievement and/or potential ability in any of the following areas: (i) general intellectual ability; (ii) specific academic aptitude; (iii) creative or productive thinking; (iv) leadership ability; and (v) visual and performing arts.

Goldberg (1986) indicated that except for the categories of general intellectual ability and academic talent, clear definitions are not available to aid the identification of high ability (i.e., leadership, visual and performing arts, and creative or productive thinking). Johnson (1986) pointed out the lack of a commonly accepted concept of giftedness too. This lack of a commonly accepted concept may likely result from the fact that gifted children vary in their abilities, in the way they use knowledge, in motivation, in interests, in opportunities, in the rate with which they assimilate information, and in background experiences.

The Gifted-Visually Handicapped (GVH) Child

The gifted-visually handicapped (GVH) child could be identified as one who requires special educational programming to accommodate one or more handicapping conditions and to fully develop one's potential for exceptional achievement in one or more areas (Whitmore, 1981). Children with visual handicaps could have a high potential for creative thinking, general intelligence ability, strong and persistent motivation, and other areas which fits the USOE categories of the gifted (Maker, 1982). Chorniak (1984) emphasizing the special needs of GVH children states that these children possess double exceptionalities and need special and different educational opportunities that go beyond the accepted concept of equal education for all children. GVH children are either underserved or underachieve in this country (Whitmore, 1987). Goldberg (1986) believed that GVH children are more likely to be overlooked when the definition of giftedness is confined to general intellectual ability and academic areas. Maker (1982) asserts that other ability areas (e.g., creative or productive thinking, performing arts, etc.) should also be considered when identifying.

Corn (1986) estimates that gifted and talented student comprise between 3 and 5 percent of the general population and that visual handicap may be found among one-tenth of a percent of school age children. Obviously, the combination of giftedness and visual handicap presents a rare human condition. Corn

suggests that special educators should be able to distinguish between a normally functioning visually handicapped child and a gifted-visually handicapped child. Cox, Daniel, and Boston (1985) offer some suggestions for identifying the gifted visually handicapped children: (i) broaden the process for assessing student ability to include a larger population; (ii) keep entrance requirements moderate and tentative to include all students who can benefit from enrichment programming rather than exclude any who are marginal; and (iii) use observation methods to determine the ability of children to solve problems or fashion products over an extended period.

Maker (1982) indicated that gifted children who are handicapped often encounter disparities in their perception of their abilities and (based on what the gifted handicapped children know about their talent) and what others discern (based on the gifted handicapped children's concepts of the debilitating effect of a handicap).

From a developmental perspective, Maker (1982) indicates that the visually impaired children's rate of cognitive development is slower than that of the nonhandicapped but they do catch up later. However, any lasting deficits due to visual disability may be observed in the area of abstract thinking. Whitmore and Maker (1985) suggested that the reasons for this slower development are the restricted nature of interaction with environment, lack of success in opportunities for learning

through imitation, and diminished amount of necessary experiences for the development of abstract concepts. Due to these reasons, GVH children may achieve at much lower levels than their sighted peers (Whitmore & Maker, 1985). Though all children do not learn at the same rate, it is essential to provide a steady challenge in learning experiences to all children and allow them to advance at a pace most natural to them (Cox, Daniel, and Boston, 1985). To be able to accomplish this individualization of rate and pace of learning and the effect of visual handicaps on learning, it is essential to identify GVH children as early in life as possible.

Maker (1982) presents a curriculum design to compensate for this delay, which includes a detailed description of needs, goals, models, teaching activities, and academic areas/materials for GVH children. Clark's (1988) teaching strategies for the gifted, based on the concept of integrated brain function (cognitive, affective, sensing/physical, and intuitive functions) should be considered to be a suitable approach for the curriculum design for GVH children. For example, emphasizing cognitive processes, providing more positive emotional feedbacks and helping students gain control over the social emotional environment, using more advanced technology and methods to help students who are blind gain more information from outside environment, and training them with more intuitive planning and decision, could be effective strategies.

Underachievement also occurs among GVH children because the visual limitations among GVH child could seriously limit their enthusiasm and interest. Whitmore (1980) reported that there are at least three distinct behavioral syndromes of underachieving students: (i) the aggressive gifted child; (ii) the withdrawn gifted child; and (iii) the erratic, less predictable gifted child who vacillates between aggression and withdrawal. GVH children may show signs of these syndromes if intervention is not implemented early.

McIntyre (1964) indicated that there are four possible causes (physical, sociological, economic, and psychological) which might lead to underachievement. Though the physical cause is apparent, its effects may well "spill over" to the other areas like social, economic, or psychological causes. To understand the problems of underachievement of gifted children, Khatena (1992) identified the dynamics of underachievement into two categories. One is the home and family dynamic which relates to parental education, levels of aspirations, emotional support, reinforcement, and availability of an appropriate achievement model. The second dynamic relates to schools which emphasizes children's adjustment to school rules and procedure, attitude towards students with special needs, educational practices, etc. Underachievement among GVH children might result from both the family and schools.

Braille Training for GVH Children

Whitmore and Maker (1985) indicate that braille training has a special relationship with a visually handicapped person's learning process. Chorniak (1984) also emphasized that braille should be the primary medium of learning and never be replaced by the more modern reading machines, just like the sighted person could not quit learning through reading and writing. The focus of braille training should, as in reading print, start with the recognition of the Code and reading it fluently, followed by comprehension. Chorniak (1984) demonstrated that children taught to read the Code in the early years, with heavy emphasis on phonics, progressed more quickly in reading skills than children who have had more emphasis on comprehension than on "cracking the Code".

Stephens (1989) indicated that in order to advance the educational and employment opportunities of individuals with visual handicaps, increasing the training on braille reading and writing proficiency is important. He demonstrated that braille is indeed a viable equivalent of the print media as used by sighted students and is an important tool to be competitive with other students in the learning process. Furthermore, Stephens (1989) also suggested that the teacher/instructor of braille should demonstrate a level of proficiency in reading and writing braille which enable them to convey a clear sense of ease and utility of braille as a medium of communication.

Swenson (1991) developed a process approach for teaching braille writing to the blind young children and found that when taught by the process approach to learn to write braille, children developed positive attitudes toward writing. She also reported that the children felt in control of their learning because they were allowed to make important decisions and felt the pride associated with authorship. It can be inferred that this new process approach would also be effective for the GVH children during early stages of braille training.

These research outcomes substantiate the importance of braille training in the cognitive development of the visual handicapped person, especially for the anyone who has the potential to be gifted. This review suggests other possible areas for research in braille training for GVH children:
(i) studies in testing the effectiveness of the extra special training program for persons with visual impairment;
(ii) studies that develop and test detailed and systematic observation methods during the braille training that could provide important cues to identify the potentially gifted;
(iii) studies testing predictive implications of braille reading ability and future success in academic and occupational achievement; and (iv) studies testing the best time to introduce access technology (for print and alternate media) to GVH students.

Identification

Maker (1976) suggests that a careful identification process should consider the specific ability level rather than the global IQ score; compare scores with other visually handicapped children rather than nonhandicapped or visually handicapped children with different visually impaired levels; and assess the potential rather than the demonstrated ability of the visually handicapped children. Whitmore and Maker (1985) listed possible factors leading to the neglect of gifted-visually handicapped children: stereotypic expectations, developmental delays, incomplete information about a child, and lack of opportunity to evidence superior mental abilities. Corn (1986) also mentioned the negative influence of stereotypes in the identification of the gifted-visually handicapped students and provides guidelines to help solve these situations.

Pledgie (1982) suggested that the handicapped gifted should be identified at the elementary school level. He provided four reasons for this: (i) it is in the early years (included the preschool and elementary school) that identification and other special programs are most inclusive and spacious (e.g., Project Child and Title I programs); (ii) longitudinal research on the gifted child indicates that underachievement in terms of potential is first noticed in the middle elementary grades and then increases greatly; (iii) intervention for the child with multiple problems is logically most beneficial if instituted

early; and (iv) teachers at the elementary level are usually the first professionally trained individuals to come in contact with child. Based on time consuming and difficult nature of assessment of students with visual handicaps and the slower developmental process of visual handicapped children, Pledgie and Chorniak (1985) all suggest avoiding the use of standardized tests for the purpose of early identification of the GVH child. Especially, Chorniak (1985) suggested that the GVH child should have at least two or three years of solid and specific programming before the standardized intelligence test scores become part of their educational records.

The authors of this review suggest that a better strategy for the identification of visual handicapped gifted child in elementary school is to use an interactive design in identification during three stages: (i) before receiving normal training/programming, (ii) during the specific training, and (iii) after receiving training. It is also suggested that since GVH children have some sensory input limitations that effect the rate of maturity, the best time to assess/identify the visually impaired person is when they have had complete access to the environment. Based on the same reason, selection of instruments must consider limitations imposed by a visual handicap.

The importance of observation. Due to the limitations of standardized tests designed specifically to assess the potential of the visually handicapped, many scholars suggest that the best

technique for assessment of visually handicapped children is observation (Anastasi, 1988; Chorniak, 1985; Pledgie, 1979; Sattler, 1988). There is a relative dearth of psychologists who have a combination of needed skills of test development and experience in the area of blindness to conduct a valid evaluation. Due to this reason, Vernon, Bair, and Lotz (1979) suggest that observational scales (e.g., Callier-Azusa Scale, or Learning Accomplishment Profile) which were specially designed for children with visual impairments might provide extensive data for identification. In cases where specific identification procedures have not been developed for the visually handicapped population, checklists and other criteria for giftedness need to be examined to determine whether they are appropriate instruments (Corn, 1986). Other than observation skills, Corn (1986) also recommended that interviews could help address a variety of issues for the gifted-visually handicapped, such as their commitment, motivation, interests, and locus of control. This recommendation is made with the assumption that interviews should not be used in isolation from other methods to draw conclusions about the GVH.

The importance of creativity. According to Torrance (1974), creative characteristics of children could be observed without testing. However, studies have demonstrated that some creativity tests could serve well for examining blind children's creative behavior (Halpin, Halpin, & Tillman, 1973; Halpin, Halpin, &

Torrance, 1973; Johnson, 1979). Johnsen and Corn (1989) also suggest that the future education of gifted handicapped children should focus on the training for creative problem solving.

Halpin, Halpin, and Tillman (1973) demonstrated that after deleting the first three activities, the Torrance Tests of Creative Thinking (Verbal) (1966) could provide an effective technique for examining creativity of blind children. They found that the visually handicapped student's score on Torrance Tests for Creative Thinking was significantly correlated with the teacher's behavior rating and intelligence tests. Further, Halpin, Halpin, and Torrance (1973) demonstrated that visually handicapped students were more fluent, flexible, and original on verbal thinking tasks. The authors suggested that these superiorities on the creative thinking abilities are vital since creative thinking abilities were important in educational achievement, scientific discovery, invention, the arts, and routine occupations (Torrance, 1962). By using Thinking Creatively With Sound and Words (Torrance, Khatena, & Cunnington, 1973), Johnson (1979) found that blind adolescents scored significantly higher than sighted adolescents on verbal originality. The results provide evidence of the effectiveness of tests of creativity with the visually handicapped population.

Sloane (1983) described some exercises that, through teaching imaginative writing, could enrich the imaginations of visually handicapped children. Sloane suggested that teachers

might develop a mode of writing which concentrated on the haptic, the auditory, the gustatory, and the olfactory aspects of experience. She also recommended efforts should be made to (a) translate the visual world into a nonvisual language; (b) develop the teacher's and the GVH children's perceptual abilities; (c) recognize that the teacher's creative writing should serve as models for fantasy and provide content that acts as a "springboard" for the creativity for their students; and (d) make all written work entertaining. Although there is a dearth of a strong research base, Sloane expects that, through the integration of creative writing and other activities, the teacher can innovate many exercises that will develop the student's expressive abilities and imagination.

Standardized intelligence tests. Public Law 94-142 mandates the appropriate use of psychological tests to help visual handicapped (or exceptional) persons recognize their abilities and remediation of associated learning problems in a mainstreamed setting. Johnson (1989) demonstrated that there is a clear need for a standardized, valid, and reliable approach for testing people with visual impairments. This need has gained momentum because visually impaired children are transferring from special or residential schools into regular education, resulting in pressure on teachers and school counselors to assess the visually impaired children in a fair and appropriate manner.

However, using standardized tests to identify visual impairment has many difficulties (Anastasi, 1988; Johnson, 1989; Sattler, 1988): (i) misuse of the standardized tests designed for the sighted population; (ii) using verbal or performance IQ as indications of intelligence; and (iii) no agreement in using unique assessment or multi-dimensional assessment. Johnson (1989) found that the objective approaches for identifying visually impaired persons utilized modifications of existing tests developed for sighted populations or selection from a very limited range of instruments designed specially for the visually handicapped population. In the first situation, problems arise from a longer administration time and lack of standardized norms (Anastasi, 1988; Sattler, 1988). In the second situation, problems are usually associated with lack of the appropriate Tactile and/or Orientation and Motor training in the early life of the visually handicapped population.

When standardized tests are used with the visually handicapped, the appropriate referent group for determining exceptionality must be reconsidered (i.e., the composition and nature of the normative population) (Duncan, Wiedel, Prickett, Vernon, & Hollings-Hodges, 1989). Whitmore (1987) suggested that, in the past, the misinterpretation of the visually handicapped children's test performance in relation to the general student population norms on traditional standardized tests is a major reason for low representation of the visually

handicapped in gifted programs. Brown (1984) reported on the effectiveness of using WISC-R subtest scatter in identification of intellectually gifted handicapped children. He suggested that a child with a physical or sensory handicap should be assessed by using instruments other than the WISC-R to minimize the effects of the handicap on the intellectual assessment.

There is also considerable argument about the feasibility of using Verbal or Performance subscales for identifying GVH individuals. For most individuals, a high verbal ability can be associated with high intelligence (Anastasi, 1988). Bauman and Kropf (1979) sent questionnaires to psychologists serving blind and visually handicapped persons in public and private schools and agencies, and found that except the Wechsler Verbal Scales, no tests were proven to be acceptable for use with blind and visually handicapped persons. But it was showed that the visually handicapped child still had difficulty with Comprehension Subtest (Kropf, 1979). Chorniak (1985) suggested that verbal ability should not be taken at face value but should be verified with an examination of the child's thought processing, comprehensive synthesis, information gathering, integration of information, generalizing, and the use of original ideas. Duncan et al (1989) also insisted that verbal IQ tests are not effective in predicting success in most visually handicapped person's works since a majority of visually handicapped persons depend more upon their motor skills. They

tried to search for a better and validated performance of intelligence test but did not succeed.

Duncan et al (1989) also found that the administration time of the most standardized intelligence tests, including the newly and specially designed tests and adaption of traditional intelligence tests, were too long for visually handicapped individuals taking the test. This led to fatigue which, in turn, could contribute to lower performance on the test.

Special Needs of The GVH Child

Few studies have been conducted to determine the self-concept of GVH individuals. Whitmore and Maker's (1985) found that self-concept has a strong effect on the GVH child's developmental process, learning, and occupational success. Other research demonstrated that visually impairment persons had lower self-concepts than the sighted persons (Beaty, 1991). Obiakor and Stile (1989) expressed their concern that the assessment of self-concept of the visually impaired individual has been restricted by the lack of availability of instruments with operational definitions and/or area-specific scoring and interpretation guidelines. They used a newly developed self-concept instrument, which is specially designed for visually impaired persons, to indicate the area-specific nature of self-concept. They found that the factors that constituted self-concept appeared to be discrete and independent. They suggested that the Individualized Educational Program (IEP) should be

designed to facilitate self-concept growth across all these areas, specially for GVH students.

Sharing knowledge and cooperation between the special educators of the handicapped, the gifted, and regular classroom teacher are important for the school education of GVH children. Cox, Daniel, and Boston's (1985) Pyramid project could serve as a good placement model for educating GVH children.

Recent Programs for The Gifted-Visually Impaired

Hackney (1986) reported a Talented and Gifted (TAG) program for visually handicapped students which began at the Texas School for the Blind. During a 6-week summer session, two programs, High Technology Computer program and Regular Compensatory Skills program, were conducted. Identification of GVH children incorporated the techniques of case study, creative potential, identification matrix (ranges of performance on various measures based on student's level of achievement and frequency of observation of certain characteristics obtained from the recommendation questionnaires), and personal interview (using Khatena's (1976) Something about Myself as a guideline). Basically, the TAG (Talented and Gifted) program attempted to provide many challenging opportunities in a meaningful, cohesive, and appropriate setting. The program components included instruction in critical thinking and problem solving skills, focus on individual skills, a mentorship program, group counseling, a creative drama workshop, an outdoor risk-taking

program, and an independent living program. These components were designed to promote affective development, encourage a realistic self-concept, and help the students to recognize their own strength. Hackney (1986) indicated that there were some limitations to this program: shortage of a real body of knowledge about such kinds of programs for the visually handicapped; the duration of program being too short to accomplish the goal of the program; and difficulties in collecting data about the effectiveness of the program. Hackney also noted that although students in TAG program were gifted, they had the same deficits and needs as the other visually handicapped students, which needed to be addressed in a comprehensive educational plan.

A systematic model, provided by Johnsen and Corn (1989), for developing programs for gifted children with sensory and/or physical disability could be adapted for gifted-visually handicapped (GVH) children. Ten stages in program development were suggested: gifted/talented committee, a multi-disciplinary committee composed of general, gifted, and special education professionals; identification of characteristics of GVH children; assessment of the district's resources; development of definition and philosophy; identification of types of programs for GVH children; identification of characteristics of curricula for GVH children; matching the sources of information to identify GVH children; selection of formal and information methods of identification; evaluation and monitoring progress; and

administrative consideration and program implementation (Johnsen & Corn, 1989).

Placement and Curriculum

In compliance with Public Law 94-142, once a child has been identified as visually handicapped, an individualized education program (IEP) must be developed. It is suggested that IEPs should focus on both educational equipment and services, which might incorporate traditional curricula designed specifically for visually handicapped students, introduction of curricula designed specifically for the gifted students, and inclusion of models used in education of the gifted in a student's concurrent program. Corn (1986) stated that career education, mentorship, leadership skills, speed-reading skills could be considered as parts of appropriate curriculum development for GVH children in public school.

Implications and Suggestions

This research review leads to several suggestions and implications for identifying and serving the gifted visually handicapped children:

(a) A broader definition of Gifted-Visually Handicapped (GVH) population is necessary to meet their sensory limitations and educational opportunities.

(b) Increasing effective braille reading and writing (e.g., Swenson's (1991) process approach) is important because it makes equal accessible education opportunities and

develops competencies contributing to success in schools. This training should be initiated during early childhood.

(c) Assessment experts should recognize GVH children's sensory limits and their slower developmental rate before they draw conclusions on the basis of assessment. Identification should also incorporate multiple data source and tests.

(d) Further research on the interactive effects of the identification instruments and the test taking time is necessary to eliminate the neglect and misidentification of the GVH child.

(e) Professionals should also consider utilizing extra resources at school to meet GVH children's needs; for example, providing special facilitation about the GVH child's self-concept by utilizing effective mentorship or workshops within the counseling system (Corn, 1986).

(f) In the past, there has been a dearth of studies with GVH children. The few research studies conducted deal with case studies and special programs descriptions. Studies investigating longitudinal progress and group studies need to be conducted in order to contribute to the understanding of special needs of the gifted visually handicapped population.

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