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I N D E X

EDITORIAL

When we attended the 8th World Conference on Gifted and Talented Children in July, 1989, we were very enthusiastic about the potential for a truly international special issue of the *International Journal of Special Education* on giftedness. In the ensuing months, the responses to our call for papers have come from all over the globe, Asia, Africa, Europe and North America.

Seokee Cho, Director of the Division of Gifted Education of the Korean Educational Development Institute in Seoul has described the current status of gifted education in Korea. Pui-Wan Cheng, currently a doctoral student at the University of Alberta, has described the intellectual, emotional and creative development of a gifted Chinese woman who became an eminent writer in Taiwan.

Klaus K. Urban, a professor of the University of Hannover in West Germany, has explored the relationships between giftedness and various personality and behavior traits. From the University of Wales, College of Cardiff, Vanessa Hale, Research Officer for the High Attainers in Mathematics Project, and Glyn Johns, lecturer in mathematics education, and Director of the High Attainers project, have described the needs of Welsh high-attaining pupils in mathematics.

From South Africa, Joyce Hickson, a senior lecturer in the Division of Specialized Education of the University of the Witwatersrand, Johannesburg, has reviewed the affective needs of the gifted.

The North American articles were also varied in content. Michael Pyryt, assistant professor of the University of Calgary, has described a research study conducted in West Virginia on preferred learning styles of gifted students, while Anita Li, professor, also from the University of Calgary, has described her research on family and self-perceptions of gifted and average children. Esther Gelcer, Chief Psychologist of the Child and Family Studies Centre of the Clarke Institute of Psychiatry in Toronto has described her research on families of gifted boys.

Garnet Millar, Coordinator of Special Education Services of the Northern Alberta Education Response Centre in Edmonton has interviewed Dr. E. Paul Torrance, *The Gentle Genius of Georgia.* Lorraine Wilgosh, professor at the University of Alberta, has addressed the global issue of underachieving and underserved populations of gifted individuals while Laurel Vespi and Carolyn Yewchuk, graduate student and professor, respectively, at the same university, have described their research on characteristics of learning disabled, gifted students.

Thus, a number of themes run through the body of papers. Two papers have described eminent gifted individuals (Millar, Cheng); two papers have described research on families of gifted children (Gelcer, Li); three papers have identified program issues and needs of students (Cho, Wilgosh, Johns & Hale). Finally, four papers dealt with affective and learning style issues (Vespi & Yewchuk, Urban, Hickson, Pyryt).

We trust that these articles cover a representative range of issues current in international gifted education.

Lorraine Wilgosh & Carolyn Yewchuk
University of Alberta
Guest Editors

EDUCATION OF GIFTED STUDENTS IN KOREA

Seokee Cho
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The current status of gifted education in Korea is discussed with respect to education in general, historical background, legislation, definition of giftedness and educational practice. Provisions for education of the scientifically gifted are described and suggestions are offered for further activities.

The gifted are considered to be a valuable human resource which can enhance the standard of living and promise better life for the country. Nowadays most of the countries in the world are concentrating their efforts on maximizing the potential of their gifted and talented in order to meet the special needs of gifted individuals on the one hand and to enhance national competitiveness in the world community on the other hand.

In this paper, the current status of gifted education in Korea will be reviewed with respect to: general educational system, historical background, legislation on the provision of gifted education, definition of the gifted, and educational practice. This paper will conclude with some suggestions regarding further activities in Korea.

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The General Educational System

The Educational system in Korea is highly centralized. Korean education is influenced by both Confucianist tradition and the American educational system. The Education Act of 1948 outlines philosophies and purposes of education, administrative systems and kinds of schools. The Ministry of Education controls the educational system with the support of local education authorities and encompasses every institution of learning at every age level.

Rationale and Historical Background

In Korea, there was a rapid expansion in the number of students during the 1960's based on the philosophy of equal educational opportunity for all children. This resulted in overcrowded classes, excessively large size of schools, shortage of teachers and educational facilities, and fierce competition for secondary and post-secondary education. In order to correct the overly competitive climate, a lottery and allocation system for screening applicants was adopted for the junior high and senior high schools in 1968 and 1974, respectively. Because of this, students with different abilities came to study the same lesson at the same time during the same period of time. Some educational experts started to recognize that not only the learning disabled but also the bright children were educationally deprived because schools failed to recognize their differing ability and provide them with appropriate educational experiences (KEDI, 1983). It was noted that gifted and talented students have a right to an education that is appropriate for their special individual characteristics and related needs. For example, gifted and talented students have a need for education that is adjusted to their achievement levels in each subject.

In addition, the need also emerged from a recognition of the social/national contribution of gifted individuals in Korea (KEDI, 1983). That is, gifted students have the potential to make a distinct contribution to society in many diverse areas: leadership, artistic creation, literary production, business enterprise, and scholarship in any one of a number of subjects. The rationale for special services for the gifted and talented is that we must develop the potential of gifted and talented youth so that they can serve the emerging needs of the national creative work force. We require creative engineers, artists, scientists and individuals in all areas of human endeavour. They must come from the ranks of gifted and talented youth. Essentially, by providing special services for a small number of gifted students, we can benefit the entire society. If this potential can be developed, society will be the beneficiary.

Many Korean experts believe that an adequate pool of scientific and technological human resources is a necessity for any industrial nation and a strong gifted education program in science is the key to such a pool. The Korean government has endorsed the strategy of fostering continuous development of its own creative know-how and highly advanced technology, through the encouragement of creative and gifted students in its latest Sixth Five-year Economic and Social Development Plans (1987-1991).

Through the efforts of professionals and advocacy groups, the first Science High School was established in 1983 by a local school board and 6 more Science High Schools have been established in succeeding years. New curriculum appropriate for the Science High Schools was developed to become effective in 1990 (Han, et al., 1987). The Ministry of Science and Technology established the Korea Institute of Technology in 1987 to expand the education

of scientifically gifted students up to college level. The Ministry of Education has also showed interest in and concern about the education of gifted preschoolers since 1985 and developed materials for parents and children to be used at home (Cho & Han, 1986; Cho & Kim, 1987).

Legislation

In Korea, there was no attempt to obligate school authorities to provide special programs according to the needs of gifted students until the Presidential Council for Educational Reform of 1987. In keeping with a Council recommendation for specification of a delivery system for gifted education, a new temporary organization titled the Central Educational Advisory Committee (CEAC) was formed under the Ministry of Education in 1988. The CEAC has recommended that legislation be enacted to obligate school authorities to provide special programs for academically gifted students from elementary to senior high schools.

At the present time, the Ministry of Education has neither legislation, policy statements, nor financial support for gifted education. However, the Ministry of Science and Technology has policy statements advocating education of scientifically gifted students to produce gifted scientists and technicians to enhance the possibility of continuous development of highly advanced technology. In addition, more changes in terms of legislation or policy statements are expected in the coming years.

Definition

A definition of gifted students limits the group of students who will benefit from the provision of special educational programs. In the Korean context, a definition of gifted students in general cannot be found in any public statements. Only those used by researchers, professionals or school officials are available for review. Most of the definitions emphasize superior performance in academic subjects, especially in science. For example, the Science High Schools define the scientifically gifted as those who show excellent cognitive ability, aptitude in science and high motivation and interests in science study and pursue science as his/her career (Hong, 1989).

There has been a tendency among school officials to adopt the viewpoint that a gifted child demonstrates superior competence, is committed to task achievement and works efficiently. Such a narrow definition of giftedness has obvious shortcomings. Selection procedures based on this approach tend to select only those gifted children who have done very well in school work. The so-called underachievers, those who are bored with school work, or those who cause their teachers too much trouble, are often simply not considered gifted under such schemes. It is unlikely that the school will identify as gifted those children who have not accommodated to its demands.

We can hope that as school systems obtain more experience and expertise in attempting to meet the needs of the gifted, their policies and practices will improve to include all gifted children.

Practices

Since the 1970's Korean educators have become increasingly aware of the fact that scientifically gifted students need more challenges and special experiences in science to fully

develop their abilities. There are now 7 high schools and one college exclusively for scientifically gifted students. In addition, an Annual Mathematics and Physics Olympiad and Summer Camps for scientifically gifted students at the junior and senior high school levels have also been implemented. The Science High Schools are equipped with advanced educational facilities and most of the necessary experimental instruments. The teacher-student ratio in the Science High Schools is 1:4, which is much lower than that of 1:31 in general high schools.

The requirements for admission to the Science High Schools are: 1) top 1% in achievement for the last two junior high school years; 2) good performance on specially set entrance examinations assessing achievement in general subjects with emphasis on science, math-ematics, and languages; 3) high scores on a science aptitude test; and 4) good physical condition. All students are required to stay in dormitories at each school.

The Science High Schools use the same curriculum as the general high schools, with some modifications. These modifications include: 1) more advanced levels of science and mathematics (45% to 47% of the total units are dedicated to subjects related to science and mathematics); 2) science laboratory activities and inquiry activities; and 3) elective courses such as history of science, computer science and so on (Han et al., 1987).

A new curriculum has been developed for the exclusive use of the Science High Schools to become effective in March, 1990. The new curriculum is based on a non-graded and individualized instructional system with provision of acceleration, grouping and enrichment. The major characteristics of the new curriculum are: 1) differentiation of curriculum to promote development of higher cognitive processes; and 2) utilization of instructional strategies to accommodate both curriculum content and learning styles of the students, who are recognized as gifted in science and mathematics (Han et al., 1987).

To expand the education of the scientifically gifted down to the elementary school level, research activities have been undertaken on the education of scientifically gifted elementary and junior high school students, with financial assistance from the United Nations Devel-opment Program for a four year period beginning in 1988. Final output of the research project will include identification instruments and teaching-learning materials in science at the elementary and junior high school levels (Cho & Kim, 1988).

Although there have been positive developments with regard to the education of gifted students in Korea, a number of problematic issues still remain to be resolved. These may be summarized as follows:

First, the number of students who are enrolled in the Science High Schools is too few to truly represent the scientifically gifted population.

Second, in order to develop the full potential of the scientifically gifted, programming should begin long before the high school years.

Third, there is a shortage of trained and qualified teachers to teach the special programs, a lack of adequate instructional materials and textbooks, a lack of training programs for the prospective and current teachers and a lack of good testing materials to identify gifted students.

Fourth, the areas of gifted education should be expanded to other areas, such as visual and performing art and liberal and social sciences.

Conclusions

The innovativeness of school boards and specific personnel in dealing with exceptional students (despite the availability of only moderate or minimum financial support for differentiated education programs) and the energy and enthusiasm invested in the creation and delivery of educational programs for the gifted in Korea is very encouraging. Formalization and legislation of education for the gifted in Korea is expected in the near future. The Ministry of Education has already tabled the gifted and talented as a major agenda item for the coming year.

Viewed more critically, current programs for the gifted and talented can only be considered exploratory and experimental. Korea has no legislative provisions requiring that the gifted receive a challenging education based on sensitive and insightful identification procedures capable of detecting all gifts and talents in young people and on program delivery systems that are broadly designed and yet capable of being finetuned to satisfy the needs of most exceptional students. In order to approximate achievement of such goals, all auxiliary and support systems (such as teacher training, graduate programs at universities, curriculum design and implementation, software development to make full use of current technology, mechanisms for parental and community involvement) must also be either created or expanded. The structural components needed to create an effective educational system for the gifted and talented are either existing or can be developed. What is needed is an overall philosophy for this type of education, possibly a recognition that the country's future may well be influenced by how well we care for and develop this human resource at the public school level. Such a demonstration of awareness and caring may in turn help create a more favourable social climate and support system inducing more artists, writers, film makers, researchers, etc. to invest their efforts in contributing to the development of the country.

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HER ROAD TO SUCCESS: A CASE STUDY OF A CHINESE FEMALE WRITER — CHEN PING

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This case study explores the intellectual, emotional and creative development of a Chinese gifted female who was a high-school dropout but later became an eminent writer in Taiwan. It also explores the factors that have turned her from failure to the route of success. Finally, implications of this case study for gifted education are discussed.

Chen Ping[1] (pen name Sanmao) is one of the most well-known writers in Taiwan today. What contributed to her success? An analysis of Chen's life experiences discloses that she has not taken a straight path to become a successful author. Her story reveals some important implications for gifted education.

Rolling Up and Down: Chen's Road to Success

Childhood: Early Indication of Giftedness

Chen Ping, third of four children, was born to a middle-class family in mainland China in the 1940's. Her father was a lawyer. Her mother, staying home with the children, was also

well educated. Shortly after the Communist Party came to power in 1949, the whole family moved to Taiwan.

In Chen's memory, her pre-school years were full of happiness, fun and excitement (Sanmao, 1981a). Like most children, play was a major part of Chen's childhood experiences. She played adventurous games with her siblings and cousins, getting along very well with them. On the other hand, she displayed some unique characteristics that made her different and special. *She was born prematurely*, Chen's mother recounted (Sanmao, 1976, p. 243).

> Since she was very young, she seemed to be a very smart girl with a strong personality. She didn't talk much, but asked a lot of questions. She loved books and plants but not dolls and new clothes. She could stay alone for hours without being noticed. She wouldn't allow her playmates to kill ants. Once she saw apples hanging up on the tree, she asked, *Is that painful?*

It can be seen that several characteristics of intellectually and/or creatively gifted persons — sensitivity, curiosity, empathy, artistic and aesthetic interests, and having time alone (Davis & Rimm, 1989) — emerged early in Chen's life.

Elementary School Years: Voracious Reading, Creative Writing and Boredom with Schooling

Chen's happy childhood did not last very long, however. She started to learn to read well before she entered school. Once within the school system, she immediately found that the inflexible curriculum and unstimulating classroom environment in Taiwan at that time could not meet her needs. She even asked her teacher, *Why didn't the editors put something more difficult into the text? They treat us kids like idiots!* (Sanmao, 1981a, p. 21). She was scolded for being bossy. Chen's exceptional writing ability was observed, as her essays were often chosen to be displayed on the classroom bulletin board. Nevertheless, she was also criticized as having crazy notions if her ideas were out of the social norm. For example, Chen once wrote about her ideal career in the future. She argued that she would love to be a *garbage digger* because there are a lot of abandoned treasures in the garbage and such a job integrates work and play. The teacher asked her to rewrite until she finally wrote that she would love to be a doctor to help people. She got an A for this final version. Creativity and imagination were not valued in a traditional education system. Thus, in the early grades, Chen was more interested in reading by herself than in school. She spent most of her time reading materials outside the school curriculum.

Adolescent Years: From Sinking to Rising

Chen's adolescent years were difficult and unsettled. At the beginning of junior high school, she expected to explore many interesting subjects in science and art. The teachers' rigid teaching, however, drove her back to her own reading world. In the first term of grade eight, she failed four subjects. In order to make her parents feel better, Chen decided to listen and behave cooperatively with every teacher, memorizing all the subject content, including mathematics. As a result, she got 100% for the several subsequent math tests. The math teacher, nonetheless, discredited Chen's performance and accused her of cheating. *For me, cheating is impossible. Even that you're my teacher, you have no right to insult me*, Chen

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protested. The teacher was furious and asked her to do an unexpected test containing formulas that hadn't been taught. Chen could not answer one question. Winning the battle, the teacher drew two black circles around Chen's eyes, forced her to stand in front of the class, and said, *You love eating eggs (i.e., getting 0% for the test) and thus I give you two big eggs.* The whole class burst into laughter (Sanmao, 1981a, p. 30-31). From that day on, Chen realized that the only way to do something she really wanted was to play truant. Instead of going to school, she went to a nearby graveyard, reading in a world of her own. One day her parents came to know about her truancy. Despite their numerous persuasions, Chen refused to go back to school. Her parents finally decided to let her stay at home.

Dropping out from school did not result in termination of Chen's education. At home, her father taught her to read Chinese Classics and English novels. A piano teacher was hired and she studied Chinese painting with a famous artist. Chen continued to read voraciously. However, she was emotionally depressed and became withdrawn, almost unreachable to anyone but her parents. She even insisted on eating in her bedroom, feeling her siblings' discussions about school activities being too disturbing. Her parents took her to a psychiatrist but this did not help much. It was not until Chen met another art teacher, Gu Fushung, that she gave up the shell into which she had withdrawn for almost four years and began to look at the outside world.

Gu was not only Chen's art teacher, but also the man who nurtured her writing talent and provided her access to become a professional writer. He allowed Chen to develop at her own pace, encouraged her to read and write and helped her get her first short novel published in a local journal of modern Chinese literature (Sanmao, 1983, p. 23-44). For Chen, this was truly a turning point in her life. She regained her self confidence. She started to eat with her family, interacting with her siblings and even fighting with them. To Chen, Gu saved her from being drowned in a pool of dead water. Instead of sinking to the deep end, she was rising again.

Adult Years: Exploring the World and Becoming a Writer

Once Chen took off her shell, she considered returning to school. She was accepted as a student auditing philosophy at a private university, the University of Language and Art. During these university years, Chen continued to use the pen name *Sanmao* to write for various local newspapers and magazines. Two years later, she went to Spain to attend the University of Madrid, studying Spanish and art. She then went to West Germany, learning German sixteen hours a day at the Goethe Institute. Within one year she obtained a certificate to teach German. She then went to the United States, where Chen worked for the Illinois Law Library in Chicago. Back in Taiwan, She took up a teaching job at the University of Language and Art. Chen stopped writing during these years. When she started to write again, she was living in the Sahara Desert.

Chen recalled that when she was young, she once read about the Sahara Desert in an issue of National Geographic, was fascinated by its beauty, and wished that one day she could have a chance to see it (Sanmao, 1981b). After teaching in Taiwan for two years, she decided it was time for her to explore the beautiful and mysterious place, the Sahara Desert. She went there alone, but soon was married to her old classmate from the University of Madrid, Jose, who followed her to the desert. It was in this land of sand that Chen started to write again.

She wrote her extraordinary accounts about the Sahara people, and the interesting stories about her and Jose. The sense of humour, the novelty, empathy, and creativity that penetrate her writings led her to receive fame for her work (Sanmao, 1979, 1980). Her books received wide distribution. For six years, Chen and Jose lived and travelled in Northern and Western Africa. Chen continued to write enthusiastically and Jose continued to work as a marine engineer. Unfortunately, Jose's tragic and sudden death at work put an end to their happy life together. Chen had not only lost her husband but a major source of support for her career development. She fell into a period of depression and once considered suicide. Her parents' love, however, finally led Chen to change her mind.

Chen is now in Taiwan, teaching at the University of Language and Art, and has found it to be one of her most rewarding challenges. She continues to write, and has become one of the most well-known writers in Taiwan.

Chen's Road to Success: An Analysis

Chen has not taken a straight path to success. At one point, she was a high-school dropout, unaccepted by society and might have sunken forever. How did Chen manage to rise again? In addition to her writing talent, what contributed to her success? An analysis of Chen's life experiences reveals that three groups of factors have contributed to Chen's success.

Personality Traits

As mentioned earlier, Chen as a young child displayed several personality characteristics shared by many gifted children described in various texts (e.g., Davis & Rimm, 1989; Kerr, 1985). She was sensitive to nature and beauty, curious about objects, learned to read early, and enjoyed being alone. Despite boredom with schooling, Chen continued to develop her own characteristics. She was an original thinker, seeking unconventional answers to common questions (e.g., garbage digger to the question of the ideal career). She was willing to take risks, challenging unjust authority (e.g., her teacher's accusation of cheating). She was an independent learner, self-motivated to read even in her most difficult adolescent years (e.g., reading in a graveyard while playing truant). She was also full of energy, determined to achieve once a goal was set (e.g., spending 16 hours a day to learn German). As a successful author today, these qualities have become characteristics of her writings. It is her sensitivity to nature, empathy to people, curiosity about the world, willingness to learn, dedication to work and most importantly, commitment to life, that have led her to become a successful writer.

Educational Experiences

Although Chen had a very destructive experience with formal schooling, it does not necessarily mean that she did not benefit from education at all. First of all, she has been a teacher to herself. She has educated herself to be exposed to various reading materials, thus enriching her knowledge, expanding her vision of the world, and implicitly building a goal of life.

Secondly, she received individualized education from her father. He guided her to the world of literature and assisted her in exploring her interests in art and music. By nurturing her artistic and aesthetic interests, Chen's father encouraged her potential in creative writing.

Most importantly, Chen has had a mentor who, in Chen's own words, *saved her from being drowned* (Sanmao, 1983, p. 24). Gue was not just a teacher to Chen, but a father-type person who showed concern not only about her talent but her emotions. It was because of this man's encouragement that Chen took her first step to the writing profession.

Environmental factors

In addition to personality and educational factors, Chen's family members, especially her parents and later her husband, have played an important role in her life.

Although rejected by her school teachers, Chen has never been rejected by her parents or siblings. She gets along well with her siblings, despite having withdrawn from them during her adolescent years. Her parents have always been supportive throughout her life. They allowed her to read whatever she liked. They took up the responsibility to educate her after she dropped out from high school. Chen's mother did not directly teach her, but she was always with her whenever needed. Also, they allowed her to travel all over the world, even to the seeming never-land — the Sahara Desert. As pointed out by Rimm and Lowe (1988), parental consistency has been shown to be extremely important to the development of gifted achievers. In Chen's case, her parents' consistent support is an important factor contributing to her success.

Another important family member in Chen's life was her husband. Although growing up in a different culture, working in a different area, Jose was always proud of his wife's work. Chen has never felt that there is a conflict between marriage and career, as some gifted women feel (Kerr, 1985). On the contrary, Chen admits that her most fruitful writings were produced during the years when she was married to Jose (Sanmao, 1981b). Chen might not have written those moving stories about the Sahara Desert had Jose not followed her there.

Finally, Chen's exposure to different cultures has enriched her writing and deepened her understanding of human nature and relationships. Hence, her extraordinary travelling experiences have also contributed to her success as a writer.

In summary, personality traits, educational experiences, and environmental influences are the three major groups of factors that have contributed to Chen's success. It should be noted, however, that classifying factors into groups facilitates discussion and analysis. In reality, it is the interaction among these three sets of factors, rather than any one particular set in isolation, plus her writing talent, that have shaped up Chen as a successful writer.

Implications for Gifted Education

What kind of implications and suggestions can we draw from this case study?

First of all, Chen's case reveals the importance of using a multidimensional approach to identify gifted children (Awanbor, 1989). This case shows that children with only one specific talent or strength are often undiscovered. Adopting a multidimensional approach helps us identify gifted children who may be otherwise neglected.

Secondly, with respect to educational programming, Chen's case strongly indicates the need of a differential curriculum for gifted children. A more flexible curriculum, a less restrictive classroom, and a more open teaching approach are some basic guidelines for planning programs for the gifted. Ideally, individualized instruction and a mentor system should be established to meet each gifted child's different needs, on the grounds that these

two procedures have demonstrated effectiveness in Chen's case.

Thirdly, Chen's case also reveals the important role of the family in the development of gifted children. Education for the gifted should include parents as a part of the team and communication between the school and parents should be assured.

Finally, Chen's case indicates that possible wide range of giftedness in the Chinese population. While most gifted Chinese are found to be consistent with the Chinese cultural stereotype: quiet, obedient and very studious (Kitano, 1986; Woo, 1989), Chen's case presents another dimension of the gifted Chinese: creative, nonconforming and challenging. Awareness of diversities may help identification of nontraditional types of gifted children in this cultural group.

In short, Chen's case has provided several implications for developing gifted education. How to put these implications into practice, of course, is another matter. It is hoped that if our education system at the present stage cannot accommodate all the needs of our gifted children, it is, at least, not producing more dropouts, as that in Chen's case.

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[1] According to Chinese custom, the surname is given first (e.g., Deng Xiaoping). This rule is also applied to the other Chinese names appearing in the text and in the references.

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GIFTEDNESS AND BEHAVIOURAL DISORDERS

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After a short introduction into the main terms used, a historical review about former theories of the genius-insanity-syndrome from Lombroso to Terman is given. Referring to empirical studies, relationships between giftedness and various personality and behaviour traits are discussed; topics include sociological variables, intellectual and social giftedness, the dyssynchrony syndrome, self-concept and self-esteem, as well as high intelligence and behavioural disorders. The short summary is followed by the in-depth discussion of two special fields, delinquency and suicide among gifted youngsters; for the latter, a case study of a gifted girl with a tragic fate is used.

In my country, gifted children and youth are not a topic or an area of interest for special education. Very seldom are the gifted seen as a group of individuals in need of special educational attention. For example, the first comprehensive paper written about giftedness and related questions in the German language is a translation of an American book (Kirk, 1971) that deals with special education. As in many other countries, in the United States education for the gifted is part of special education (see, for example, the TAG (*Gifted and Talented*) section within the Council for Exceptional Children (CEC). Using the term *exceptional* facilitates the inclusion or integration of the various specialities and deviations

of the gifted and working with the gifted, understanding the *Heilpädagogik as working with children who fall outside of the normal range* (p. 242).

Today, the structure of (West) German special education has been formed by historically caused, institutional-organizational provisions, i.e., the establishment and existence of different schools and rehabilitation centres for different handicaps and specialities. In spite of this, it would be wrong to conclude that the call for an educationally special consideration of the gifted involves the need for special schools or institutions. This paper does not propose exact organizational recommendations for special school branches; instead it offers qualitative information that leads to the considerations of educational programs which meet the needs, abilities, and potential of the special individual (Urban, 1982a, 1985) and which bears in mind the respective handicap/speciality and the handicapping/special internal and external conditions. This paper does not, however, argue for the gifted as a (potential) target group of special education but discusses if, how, to what degree, and in what direction a relationship may be assumed between giftedness and behavioural disorders.

The Terms Giftedness and Behavioural Disorder

Both terms describe human traits, behaviour, and/or achievement areas, whose speciality, kind, or modification are located outside of an assumed, perceived or attributed convention, or outside of a norm defined by statistics. While the one term means the *plus-variant* of a (multi)dimensional continuum, the other one stands for a *minus-variant*. There are no generally accepted or commonly used definitions (Urban, 1982c).

The label *gifted* does not stand for a homogeneous group; in the same way as you cannot talk about the learning disabled or the behavioural disturbed you may not talk about the gifted (Freeman, 1985). Although the *gifted* do not exist as a special type of human beings, it is necessary and possible for research, work, and description purposes to define operationalizable variables in order to design a working construct of/for giftedness. Until the sixties, the concept of giftedness was fixed to traditional concepts of intelligence and determined by existing or accessible methods of intelligence testing. Today, there is a broadened or extended concept, a multidimensional or more componential approach, which includes high general and/or specified intellectual abilities as well as general high cognitive, creative, and non-intellectual factors, like motivation, interest, and task devotion. Not only (complex) problem solving, but problem finding and the potential for knowledge production (Jellen, 1985) characterize the gifted.

The gifted may be described as individuals who are able to perceive, to process, and to apply information (data, facts, knowledge, and ideas), not only intensively and effectively (and over a long time if needed), but critically, producing new information (Geuss & Urban, 1982; Urban, 1990). The information includes the whole range of human (inter)acting opportunities. The content of such a definition is dependent on the purpose of application, e.g., the pedagogical problem, as well as the general and special historio-societal conditions.

A nativistic definition does not help in describing the gifted. It is not possible to use a biologistic-genetic or exclusively environmental or socializational concept. Based on interindividually different dispositions, gifts, talents, and abilities may only develop through/by interaction with the material and social environment and on the background of the culture-historical development of mankind (Urban, 1990). Giftedness regularly means intellectual

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and/or academic giftedness since in the empirical studies, giftedness mostly is measured by tests of intelligence and/or scholastic aptitude.

Since the cited studies rely upon very different concepts of behavioural disorders, this term may only be described very vaguely (Urban, 1982b, pp. 51-53). It includes all kinds of deviant or deviantly perceived behaviour in the emotional-affective and/or social area, and it includes the neurotic, psychically inhibited, or emotionally disturbed child, named in a rough classification by Bittner, Ertle, and Schmidt (1974), as well as the socially regressive or aggressive child, the so-called acting out or maladjusted child.

Historical Review

The question of a relationship between giftedness and behavioural disorders has deep historical roots which can be detected today as popular assumptions, prejudices, and in sayings like *Early ripe, early rot* or in that seemingly close pair of terms *genius and insanity*. The last is a kind of myth which has its origin in traditions and descriptions of geniuses or in biographical research on personality and life careers of people having been seen as geniuses, especially the work of Lange-Eichbaum (1927, 1967). Around the turn of the century (Cattell, 1903; Churchill, 1909; Galton, 1869; Lombroso, 1887; Yoder, 1894), and then again in the twenties and thirties (Cox et al., 1926; Dixon, 1923; Ellis, 1927; Kretschmer, 1931; Lange-Eichbaum, 1927), various studies were published dealing with the genius, a term or concept going back to the ancient world (e.g., Urban, 1982d). Since ancient times, a lot of partially contradictory theories of the genius had been brought up; thus, the genius seemed to be inspired by god(s), as an expression or a tool of gods, or a god-like entity him/herself. The conceptions went from the genius as *simply* gifted up to a biologic-psychically higher form of man.

With Moreau (1859), in Europe, a *period of the devaluation of the genius started by defining the genius trait causally as a pathological symptom of an increased irritability of the nervous system* (Cremerius, 1971, p. 7). Lombroso (1887) popularized this approach by coupling the terms genius and insanity *(follia; Irrsinn)*, which became the pattern for the following decades. A special field of research arose within psychiatry, which developed the biography to the patho-biography, trying *to diagnose scientifically the kind of mental disease* of/for all people who at least approximately could be seen as geniuses (Cremerius, 1971, p. 8). The peak of that development was the broad and comprehensive work of Lange-Eichbaum (1927); he additionally brought the sociological term of fame/glory *(Ruhm)* as a foundation and presupposition for the effectiveness of the genius into theory. *Insanity (Irrsinn)* was not seen as generally synonymous with mental disturbance, but he formed the *value concept of the bio-negative*, which includes everything unfavourable and abnormal, everything that *abstracts logically all biologically unfavourable dynamics, all processes of a dangerous kind for living* (Kurth, 1961, p. 96). For the genius the *prickle of the bio-negative* is origin, source, and impulsion of creating, of the grand achievement. This monumental work and the represented kind of research, which has been set forth by a student of Lange-Eichbaum (Kurth, 1961), is evaluated by Cremerius as *monumental emptiness* (1971, p. 9). Nevertheless, such approaches and interpretations, even if they may not be defendable from a scientific point of view, have their long-term effects.

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At the beginning of the century, representatives of psychoanalysis also worked on the problem of the genius. Under the motto *from patho-biography to psycho-biography*, they tried to bring back the *exterritorialized genius into the area of human being and presence*, and *to free rhe genius from his/her alienage and strangeness causing anxiety, fera, and defense* (Cremerius, 1971, p. 9). According to psychoanalytical approaches, the genius, like everyone, has to achieve in displacements during development, which are more or less successful. Freud has negated the question of a relationship between genius and abnormal power or weakness of drive, successful or unsuccessful defence, and the degree of anxiety relative to ego strength. For him, there are genius-like men and women with average, non-deviant behaviour, but others who are strongly mentally disturbed. High achievements by these people may come about in spite of the neurotic or even psychotic personality structure (i.e., by means of the non-pathologic portion of the personality) or because of these disturbed personality structures (Cremerius, 1971, pp. 16-17).

In order to refute the myth of a close relationship between genius and psychic abnormality, this so-called divergence hypothesis, Terman started, in 1921, his historic and monumental, empirical long-term study with about 1500 gifted students from California, his *little geniuses*. He called those students gifted who had been nominated by their teachers and had gained an IQ of 140+ in the Stanford-Binet Test. He was interested in the traits or characteristics of children with above average intelligence as well as in those factors responsible for very high (intellectual) achievements. The results of his studies have been published in some impressive books during the last decades (Burks, Jensen & Turnman, 1930; Terman et al., 1926; Terman & Oden, 1947, 1959) and have been continued by his co-workers and students (e.g., Goleman, 1980; Oden, 1968, Sears, 1977; Sears & Barbe, 1978). Very generally, his findings favour a general superiority of his intellectually gifted in regard to practically all personality areas and to aspects of academic, professional, and life career. Not only as children and youth, but as adults, the members of his group are taller, healthier, socially more adapted, emotionally and general psychically more stable, display higher academic and professional achievements, have a higher income according to their higher professional positions, have more stable family relationships, and have lower frequencies of emotional and mental disease than the normal average population. Although no Nobel Prize winners or *geniuses* came out of this group, Terman rejected the above mentioned divergence hypothesis in favour of a *convergence hypothesis*. The influence of his results on following pedagogical, theoretical, and empirical studies was enormous, a kind of *post-Terman-myth* developed. But in spite of his interesting and impressive study, there are many critics who strongly doubt the results' general power of evidence (Altman, 1982; Freeman, 1985; Schmidt, 1977; Urban, 1981, 1982c; Webb, Meckstroth & Tolan, 1985).

Nevertheless, in the decades after Terman, various researchers have found empirical evidence for a *harmony* between high mental abilities and physical as well as psychic health (see Anastasi, 1963; Durr, 1960; Goertzel & Goertzel, 1957; Miles, 1954; Tyler, 1965); again, these results have to be interpreted with caution.

Relationships Between Giftedness and Various Trait, Behaviour, and Personality Areas

Following sections refer to various empirical studies on different, partially overlapping areas concerning giftedness. Neither research on the gifted or psychology in general, have

been able up to now to develop a comprehensive, integrative theory of personality by which we can deduct, describe, explicate, and interpret all the possible *thinkable* approaches of research as well as the results. Thus, though stressing the wholeness of the individual personality and his/her interaction with the environment, singular areas dealing with the gifted and behaviour disorders will be extracted, separated, and will stand relatively for themselves. This is a reflection of the situation in literature and research.

Sociological Variables

The more uni-variate view of a direct and simple relationship (or non-relationship) between high intelligence and behavioural disorders have been replaced by more differentiated approaches. Not only have purely causal determinants of intelligence and personality been investigated, but the conditions of application and use of high intelligence have also been examined. *While Terman tolerated behavioural disorders of gifted as 'errors of nature,' in recent literature more and more sociological factors have been considered* (Reinhard, 1981, p.120). This is especially true for psychiatric studies; see, for example, the study by Schmidt (1977), which is reviewed later in the paper.

Earlier studies, which are comparable to Terman seem to give evidence for a positive relationship between high intelligence and emotional stability as well as better social adaptability (see Barbe & Chambers, 1964; Grace & Booth, 1958; Horall, 1957;Kennedy, 1962; Liddle, 1958, and Pielstick). Although mentioned often (Anastasi,1963; & Miles, 1954), these studies have given little or no attention to the factor of socio-economical environment, and according to Schlichting (1968) these studies must be reviewed. Only a few studies have controlled these variables, and they show that stated differences to the person of average intelligence decreased strongly (Bonsall & Stefflere, 1955; Laycock & Caylor, 1964; Frierson, 1965), except in the field of interests. Referring to her results, Schlichting(1968) assumes that *the positive picture of the high intelligent ... in fact is the picture of a group with a higher social level* (p. 147).

It may be supposed that children from/in socio-economically higher levels normally have an intellectually more stimulating playing- and learning-environment. Thus, although not a sufficient presupposition for a non-problematic development, one may conclude that the opportunity for satisfying the intellectual curiosity and drive for knowledge and for using the potential meets the special intellectual abilities and interests of the gifted.

Intellectual and Social Giftedness

The different and divergent results of empirical studies on social adaptability and giftedness are due, among other reasons, to a lack of clarity in the applied terms and varying concepts. In a recent review, Abroms (1985) differentiates a construct of *social giftedness* into four areas: social cognition, prosocial behaviour, moral reasoning, and leadership.

Already at the age of three, intellectually gifted show astonishing abilities in regard to social cognition; that is, at the age of three the gifted can take the perspective of other persons concerning their visual perception, their desires, ideas, thoughts, knowledge, needs, and their feelings (visual, conceptual, and affective perspective taking). These abilities correlate positively with the level of intellectual giftedness, but no correlation has been found between social cognition and prosocial behaviour, not for the gifted as for other ability groups.

Even if social cognition as well as intelligence is a necessary component of moral reasoning and consciousness, a high level of intelligence in no way gives a guarantee for a high level of moral thinking and judging (Kohlberg, 1969); also, its relationship to moral action is not unequivocal.

A person gifted in leadership must be capable of prosocial behaviour as well as specially high levels of moral reasoning and social cognition (i.e., concerning perspective taking and understanding of others). Intellectually gifted youth normally gain higher scores in paper-pencil-tests of moral reasoning and seem to have more (mental) leadership qualities than their peers, as self-assessment scales and biographies show; nevertheless, the relationship between intellectual giftedness and leadership tasks and qualities in practice are not convincing.

According to Abroms (1985), there is no secure empirical evidence that intellectual giftedness involves or is synonymous with social giftedness since the latter develops from the interaction of high cognitive abilities, including social cognition and moral reasoning and judging and, remarkably, positive social behaviour and moral action.

The Dyssynchrony Syndrome

The idea that the speed and course of the different areas of a child's development are not always synchronous and may cause problems was first called the concept of *heterochrony* by Zazzo (1969), referring to the development of the mentally retarded. Similar, but using the term *dyssynchrony*, Terrassier (1982, 1985) describes the specific problems during the development of gifted children which can work as stimuli for problematic developments. He differentiates between social and inner dyssynchrony.

Discrepancies in the social area occur:

a) in the school, for example, between learning potential and willingness of the child to learn and to achieve on the one side, and the standardized, inflexible curricula and learning organisation on the other side, and b) in regards to peers and their intellectual abilities and interests.

Inner dyssynchronies refer to discrepancies between

a) the intellectual and psychomotor development, b) different areas of intellectual abilities (e.g., verbal vs. non-verbal), and c) intelligence and affective-emotional maturity; that is, the child is able to perceive and process information intellectually, which the child cannot cope with emotionally, which is not interesting to other children. Consequently, a gifted child really does need warm and understanding attention and devotion by parents and teachers.

Self-Concept and Self-Assessment

Very often in the literature about giftedness and education of the gifted, you will find the claim for very early and systematic identification of gifted children, without a discussion of related implications. Freeman & Urban (1983) have pointed at a possible danger which may come from a mere labelling of an individual as *gifted*, true or not. Labelling and the related self-perception of being different might have strong and not necessarily positive effects on self-concept (Janos, Fung & Robinson, 1985; Hamilton, 1960; Torrance, 1968).

The great majority of highly intellectual children have a satisfying level of self-esteem compared to average children (Colangelo & Pfleger, 1978; Glenn, 1978: Janos et al., 1985; Janos & Robinson, 1984; Lehman & Erdwins, 1981; Milgram & Milgram, 1976; Rogers,

1979; Stopper, 1979; Tidwell, 1980; Yates, 1975; Woodlands & Wong, 1982). But the literature is not homogeneous. Various authors (Bracken, 1980; Fults, 1980; Glen, 1978; Klein & Cantor, 1976; Milgram & milgram, 1976; Rogers, 1979; Stopper, 1979) report comparably negative results for certain groups of gifted. Those groups, for example, are learning disabled gifted (Elkind, 1973; Whitmore, 1979; Senf, 1983; Yewchuck, 1985) and gifted underachievers (Saurenman & Michael, 1980; Whitemore, 1980).

Coleman and Fults (1982) think that the discrepancies in the results are due to the fact that self-concept is too rigidly seen as an invariant psychological trait and not in its dependence on the social environments, especially the learning environments. The appreciation/non-appreciation and fair judgement of the specific individual achievement by self and others plays an important role, especially during puberty (Kaiser & Berndt, 1985; Monks & van Boxtel, 1985), a time of substantial physiological and psychic changes, when the process of separation and individuation loneliness becomes an important variable (Ostrov & Offer, 1978). At this time, gifted youth are especially endangered as Kaiser and Berndt (1985) found out. About 12% of the young people in their study on gifted youth showed not only significant degrees of loneliness, but also depressive symptoms. Educators and teachers should give special, sensitive attention to behaviour of youth which may represent helplessness, intro-version, feelings of guilt and low self-esteem, which together with stress factors (for example, critical life events) may lead to depression endangering personality and life.

The Schmidt Study on Intelligence and Behavioural Disorders

The only broad and comprehensive study in the German language, in addition to a smaller one by Reinhard (1981), dealing with high intelligence from a clinical-psychological, psychiatric point of view has been conducted by Schmidt (1977). His results had some influence on the new discussion about gifted children and youth and their promotion in Germany. Schmidt investigated psychiatric populations defined by high intelligence (above IQ 120 on a Binet Test) and disturbances of behaviour and/or adaptation, neuroses, or psychosomatic disorders. Two hundred and seven such children were compared to 128 children of a control group, who had comparable diagnoses, average intelligence, and had treatment and therapy in a child-psychiatric clinic.

Differences between both groups strongly point to the important role of the mother's educational behaviour and social class: *Highly intelligent children, especially boys, from middle and upper class become deviant and striking relatively late, in higher school grades. They have mothers who often have a high level of academic education themselves and are working in their profession* (Schmidt, 1979, p.20). Gifted children who display behaviour disorders in the elementary grades are more often from the lower and lower middle class, from small families with relatively young, non-professional working mothers who assess their own educational behaviour as authoritarian. Dominating symptomology for these children is aggressive inhibition with bad relationship to their mothers (pp. 19-20).

Success of treatment does not correlate with social class. The first symptomatologies of highly intelligent children are achievement- and contact-disorders, followed by functional disorders, depressive-nervous symptoms, symptoms of neglecting and finally motor, aggres-sive, auto-aggressive, and psychosomatic symptoms (Schmidt, 1979, p.30).

Some further relevant findings are:

a) For two thirds of the patients, their very high intellectual potential was not known by either parents or teachers. b) If verbal functions of intelligence have been slow or weak in developing, identification may become hindered. c) The higher frequencies of patients at the age of 10 and above point to the dangers of increasing asynchrony of development during pre-puberty and puberty. This is characterized by the discrepancy between the speeds of the intellectual, the emotional, and the physical development, which very often leads to disturbances. d) The percentage of academic non-achievers and drop-outs is unexpectedly high. e) For a non-problematic development and use of high intelligence emotional stability, a favourable environment for motivation and interests and consideration of capacity limits are necessary. f) Guidance and counselling for parents of highly intelligent children, which consider sociological variables, are needed.

Summary

In various studies, a range of factors have been named which may increase the risk of socio-emotional negative developments, if the environment is not individually adequate. The following list of *risk factors* for the gifted is not a *general typology of the gifted*; rather it refers to the relevant action, achievement, and ability areas:

1. Increased sensitivity for experiences including social relations and climates. This does not mean that the gifted have special abilities for feeling and loving - much less an increased need for love - but their perception is broader and more effective, and they are more able to process, interpret, and articulate their experiences rationally. They seem to see more in their experiences than the less gifted.

2. Increased intellectual curiosity, which if not satisfied may lead to frustrations and feelings of insecurity, anxiety, isolation, or rejection.

3. Challenge and non-use or abuse of the intellectual potential.

4. Readiness and willingness for risk-taking in thinking and rejection of routine or simple skill training (which normally is unnecessary for cognitive learning).

5. Strong open or hidden creativity, fantasy, non-normal, extraordinary, *deviant* ideas, objects, situations, and creative social problem solving.

6. Deeply critical attitude, even toward oneself, which may lead to the rejection and non-acceptance of social demands and models if the gifted cannot be convinced by the intellectual or emotional value and validity of those *social dogmas* and their application to oneself.

7. Developmental discrepancies between intellectual and emotional-affective maturity.

8. Increased need for perceived and experienced emotional and social securities; changes are perceived and experienced more intensely.

9. High level of self-demand and inclination to perfectionism, with relatively low limits of tolerance to frustration.

10. Knowledge about being different or intellectually superior.

11. Labelling as being deviant, different, and/or gifted.

In the next two sections some of these points will be discussed and illustrated in more detail for two extreme groups of deviant behaviour.

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Delinquent Gifted

Some time ago, delinquent gifted children, *bright kids in trouble with the law*, have been seen more as a contradiction than as a fact (Parker, 1983, p.180). A body of literature is growing, which not only discusses and investigates the problems of gifted delinquents, but also suggests that the number of gifted children/youth in the whole population of young delinquents is much larger, if not significantly larger, than was previously assumed.

Parker (1983, pp. 182-183) describes various traits characteristic of gifted delinquents which are confirmed by Brooks (1985) in his study on 135 gifted delinquent boys:

1. lack of parental binding and affection; 2. remarkably shorter time of schooling and low academic success; 3. much stronger learning disorders than for most other groups of children/ youth; 4. highly egocentric; 5. strong symptoms of deprivation regarding care, love, and affection, as well as in giving and taking; 6. if possible, avoiding and escaping restrictive situations and low tolerance of frustration; 7. socially and emotionally deprived and isolated, except in their own group, and 8. angry and rebellious, becoming obvious in aggression or retreat.

In his study, Brooks (1985) compared 135 highly intelligent boys (WISC IQ 120+; HI-group) with normal intelligence boys (IQ 90-105; NI-group), who, at the age of 10 to 13, were brought before a court for the first time. Analyses show that disturbed relationships with parents and academic under-achievement had a significant effect on the criminal career of the highly intelligent delinquents as compared to the boys in the NI-group. Although the number of judicial summons was lower for the HI-group, the number of confessed punishable acts was higher. In addition, the acts of this group seemed to be linkedmore strongly with psychological complications and implications, which is supported by Gath, Tennent & Pidduck (1970) who state that gifted delinquents show psychiatric symptoms to a higher degree than their less gifted peers.

Discussing his results, Brooks describes substantially the same factors which may endanger the emotionally and socially stable development of gifted children/youth summarized above. He also notes that such tendencies, together with unfavourable environmental conditions, may lead to deviant behaviours, to delinquencies, to drop-outs, and to trials of suicide (see next section). One significant trait seems to be the isolation from peers, especially in danger, since often overlooked, are the shy, reserved, sensitive gifted children. Stable relationships in the family and consistent, emotionally acceptable educational practices give the child a chance for successful adaptation and self-realization; over-permissive or over-restrictive and inconsistent and unpredictable education increases the risk for abnormal development. This lack of recognition and appreciation of special abilities as well as the overly high expectations of parents regarding special achievements and the central focus on intellectual abilities which neglects emotional and social needs, may finally lead to failure and the refusal to achieve and to a very hostile attitude toward school, which plays an important role in the etiology of gifted delinquents.

Suicide

Recently, more attention has been given to the increasing number and relative over-representation of gifted youth among drop-outs, delinquents, and suicides (Delisle, 1982: Lajoie & Shore, 1981; Webb, Meckstroth & Tolan, 1985). Especially shocking is the

increased number of suicidal trials in the USA during the last 30 years; Greuling and DeBlassie (1980) even talk about a *wrist-cutting-syndrome* for young women below 20 years of age with an above average IQ.

Webb et al. (1985, pp. 164ff) describe three forms of depression. Also, anger in conjunction with depression can lead to destructive action which the persons use to dramatically punish themselves and/or another person. Roots for the three forms of depression are:

1. The drive and need to do justice to unreachable high standards of morality, responsibility, and achievement they have set for themselves (see, for example, the authentic reports in American Association for Gifted Children, 1978); 2. Feelings of alienation and isolation from other persons who consider them as *brains* or as *achievement power stations*, but not as persons; and 3. The intensive and, at the same time, seemingly hopeless concern with the basic problems of human existence.

Also, for Deslisle (1982), striving for perfection is one of the most important factors in depression among the gifted. Unrealistic expectations or achievement pressure may cause these children to fear failure, finally leading to a general anxiety about being a human with the natural opportunity and right to make mistakes. Another important factor lies in the lack of real identification with peers of the lack of appreciation by them.

Deslisle mentions the following warning signs for possible suicide, which also reveal a progressive experience of lack in regard to the adaptation to social expectations:

1. self-devaluating utterances; 2. sudden changes in academic achievements (higher as well as lower); 3. increased learning and nearly total devotion to schoolwork, and 4. frequent changes of mood, which are manifest more as anger than as depressive symptoms.

Sensitive behaviour by parents and teachers may hope to prevent problematic developments such as suicide, and this behaviour should include: respect for and appreciation of the child and his/her difficulties and self-doubts; honesty and openness toward their own weaknesses; awareness and recognition of non-conformism; being tolerant of changes in mood and achievement, for experiments concerning social and sexual taboos, for juvenile idealism and disappointment, as well as participation in the child/youth's lives and experiences as participating observer, friend, arbitrator, and counsellor, with the ability to ignore actively and the readiness to intervene whenever necessary.

In discussing basic and substantial questions of human existence, there is the danger that abstract consequences and theoretical concepts explain little and that the question for meaningful real life get lost. Therefore I would like to add a *case*, better, a *human* study.

Stefanie had a slight articulation disorder and a harsh, creaking voice; she suffered from spastic symptoms in the hand's fine motoricity (MCD). Nevertheless, she was very gifted; at the age of six, she read fluently child and adult books for her own interest. In the first grade, school became pain and agony for her. The teachers did nothing when she was beaten by peers. Her parents decided to let her change schools. In the new school the teachers paid attention to her handicap, but Stefanie soon got bored and did not establish contact with the other children. At the *Gymnasium* (high school), some of her peers let her feel their physical superiority. She was scoffed at and annoyed; her achievements became devaluated. Some students and parents suggested that her handicap needed no special attention or consideration since she was the best student in the class. Again, she got bored and lost all interest in school.

At home, she began to read religious and philosophical books, but more and more, she felt her talents were a burden. Her giftedness had removed her from other people and it stimulated envy and rejection. Her special interest and high knowledge in biology were reason enough to deny her a biology course. Again, she changed schools. She began to doubt the sense and value of achievements, and she began to doubt herself. Her thoughts and feelings are reflected in poems and stories, which she wrote secretly. At the age of 18, she took her own life. After her death, her father found the following (very much shortened here) story which she had written, at the age of 15, after receiving her school report with, as every year, the highest marks (1.0) possible:

> The award or about a life which left to get the award and about an award which came to take the life. Sorry, no fairy tale, but a real invention. She was the best. She had gotten the award. She became the award. Whatever she did, it was done by the award. When she went up, sat down, went to school, put her hand up, ate, slept - everything - was done by the award. When she was thinking, she was not thinking, since the award was thinking.

> Hordes of students stood around her table, when the reports had been distributed. Do you have the award. Come on, show it! When she walked in the schoolyard. Are you the 1.0? Are you the award?

> And now the fourth time. The award was the grand golden shadow she threw. She disappeared behind it. She thought, no, she did not think, the award was thinking. She left the train. She disappeared behind her award. She did not like to be looked at and stood behind a post at the railway line. She had earned the award.

> Really? Had she really worked? The award had flown to her. Yes, in relation to the standard, she had earned the award. But was the standard the right one? Could she really work later on?

> She only would collect awards, but not achieve in something! Who was she really? Nothing, too. Nothing! Nothing!

> The next train came around the corner. Average one point zero. Some kind of impulse made her fall into the direction of the rails. No, she did not want to, not yet! She held her report and her award up in order to keep herself safe. The train came up to her. She had been nothing other than the award. She had been nothing. She could have become a human being. Too bad.

Conclusion

Both the terms behaviour disorder and giftedness define something that stands outside the norm, outside the average range. Since giftedness is characterized by an extreme position in regard to one or more functional areas of human acting and abilities, the idea seems obvious that an outside position might be determined *per definitionem*, an outside position which is connected with (negative) social and/or emotional-affective effects. The labelling by others as deviant from a norm, e.g., being gifted, and/or having the self-perception of one's own person as strongly different from others may lead to negative changes in self-concept if the

situation is not (special-)educationally modified in favour of the individual.

Also, giftedness, which has not been recognized (as extraordinary), may cause problematic developments. What is needed is a preventive (special) education which targets the *normal case of the individual special case.*

Although the gifted are not automatically superior to the average population in all areas, for example, the emotional social area (convergence-hypothesis), the assumption of a linear-causal relationship between giftedness and socio-emotional disturbance cannot be maintained (divergence-hypothesis).

Children with extraordinarily high abilities of information perception, processing, application, and production, i.e., highly intellectual and creatively gifted children, and who have a high achievement motivation, are at risk for development problems. Whether these dangers become disorders depends on the relevant moderating variables for the development of the person. As for all children these variables depend on the agents of socialization, that is, the parents, family, peers, educators, and teachers.

Negative developments could be diminished by the simple insight, and appropriate educational action, that every child is a unique individual, that nobody is normal, and everybody is special. Consequently, it is necessary to recognize and acknowledge that extraordinary gifts and abilities are normal.

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CATERING FOR THE NEEDS OF HIGH ATTAINING PUPILS IN MATHEMATICS IN WALES

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The article considers initiatives which are being developed in Wales to cater for the needs of high attaining pupils in mathematics. Reference is made to the work carried out at the University of Wales, College of Cardiff, during the last ten years with pupils in the age range 11 to 13 years. Special mention is made of mathematics camps which have been set up for pupils in the local schools. The article also considers the work of a project which was locally funded, and was specifically promoted to provide mathematics materials for high attaining pupils to be used in normal classroom settings.

The needs of gifted children in schools have been the subject of much discussion in recent years. Such reports as *Mathematics for Gifted Pupils* (Straker, 1983), *Guidelines for the Recognition of Gifted Pupils* (Clarke, 1983) and *The Implications for the Needs of High Attaining Pupils* (Royal Society, 1979) provide a wealth of discussion on this topic. The Cockcroft Committee (DES, 1982) devoted several pages of its report to the consideration of high attaining pupils in mathematics. More recently, Marjoram (1988) argues the case for recognizing and encouraging talent in such areas as mathematics, languages, art and music. The Secretary of State for Education has also emphasized that bright children are insuffi-

ciently stretched in school and that many children fail to exercise such vital qualities as intellectual rigor and perseverance.

The importance of the educational development of mathematically able pupils is highlighted by the fact that a special issue of *Educational Studies in Mathematics* (Bishop, 1986) was devoted to this topic. Particular articles drew attention to the worldwide approaches used in identifying and fostering the needs of the mathematically gifted. Countries differ in preferred options, with methods and approaches reflecting their different educational philosophies. Some countries have highly selective schools for gifted children, whereas others, as a matter of policy, have introduced high ability groups in their normal school settings.

For some people, the notion of egalitarianism which pervades many educational systems throughout the world tends to inhibit initiatives which specially cater for an elite group of children. The word *giftedness* seems to have an unfortunate connotation, and politicians, in particular, appear to have jaundiced views regarding the provision of special facilities for the highly talented. Even teachers sometimes show a reluctance to make special efforts in this direction, although there are many examples locally of practices which are described as being highly commendable (HMI, 1987). Obviously, the Cockcroft Committee were well aware of the emotiveness of the word 'gifted' and they showed a preference for the use of the term *children whose attainment is high.*

The argument for special provision to be given to the more able pupil is persuasive and takes into account the wide variations that exist in school pupils' rates of learning in mathematics. The capacity for high attainment is apparent even at an early age, it is said to be present in the primary years and is particularly evident in the early years of secondary education. Giftedness in mathematics may well be difficult to identify, although studies of pupils suggest that the speed of learning, the ability and, indeed, the enjoyment of working with abstract quantities, together with a desire to involve themselves in open-minded investigation are sound indicators of outstanding ability (Ashbrook, 1977).

Normal classroom lessons, however, even when they are given to streamed classes, often fail to meet the needs of the more able pupil. In these circumstances, the strategy of providing accelerated coursework leading to early entry for external examinations can have undesirable consequences, particularly when high attainment in mathematics is not supported by a similar level of attainment in other subjects. The most important provision would seem to be to extend the range of the mathematical opportunities for the able pupil, thus providing challenging coursework to match the level of their attainment. *Many pupils need help and sometimes judicious pressure, to discover the 'overdrive' which they possess but of which they are not fully aware* (DES, 1982; para. 474).

Local Initiatives for Meeting the Needs of the Able Pupil in Mathematics.

Over the past ten years, several local initiatives have been set up to meet some of the needs of the able pupil in mathematics. These initiatives, for the most part, have emanated from the mathematics and the education departments at the University at Cardiff, but they have had the strong support of local advisors for each of the three local authorities - mid and south Glamorgan and Gwent - as well as members of the Inspectorate at the Welsh Office. There have been three such endeavours which are worthy of note.

1. Mathematics Enrichment Clubs.

Mathematics Enrichment clubs were initiated at University College, Cardiff ten years ago under the direction of Professor Wiegold and Dr. Rigby. Essentially, the aim is to encourage pupils to solve mathematical problems and to experience the excitement of *doing mathematics*. This work has flourished at both junior and senior levels, attracting a large number of pupils from many secondary schools in the area.

2. Mathematics Camps.

In April, 1986 the first mathematical camp in Wales for secondary pupils was held at the Ogmore Educational Centre (Johns, 1986). This proved to be a highly successful venture and it attracted over 70 pupils who attended for a week. The intention of the organizers was to provide opportunities for more able pupils to allow them to experience mathematics in a less formal and more challenging way than is possible in the classroom. Since then, further camps have been held regularly and the initiative has been extended to include primary school children. This endeavour has attracted interest from other parts of Wales. In particular, The Clwyd Educational Authority has organized and developed similar ventures for its pupils.

3. Mathematics Olympiad Classes.

Every year schools throughout England and Wales are asked to enter pupils for a national competition in mathematics. The results are used later to select pupils for the British Mathematics Olympiad team. Unfortunately, local interest in this competition has not been great, although several schools have participated. To support the schools in this direction, several members of the mathematics department at Cardiff agreed to set up practice sessions for possible participants. The response to this gesture was good and this activity was seen as a basis for an effective collaboration between local schools and the university.

The High Attainers Project, 1988-89

In January 1988, a Welsh office grant was awarded to the Education Department at University College, Cardiff to develop mathematical resources appropriate to the needs of high attaining pupils in secondary schools. The project was scheduled to run from January, 1988 to December, 1988, but a one year extension was granted later to provide time for the preparation of more topics and also to relate to the proposals of the National Curriculum which were being introduced at that time.

The aim was to develop learning packages which could be used for pupils who were identified as high achievers in mathematics. It was anticipated that these packages would be used to supplement the normal work carried out in the classroom and that the pupils who used them would not necessarily be *gifted*, rather they would be high attaining relative to other pupils in the class. In these circumstances, the pupil tackling the topics should be able to progress independently, without unduly affecting the teacher's work with the remaining members of the class.

The project was directed by Dr. Glyn Johns of the education department and Vanessa Hale, a teacher from a local comprehensive school, was appointed as the Research Officer. Miss Hale's first task on appointment was to develop contacts with a selected group of schools from the three local authorities. The Project's Steering Committee recognized the need to set up procedures for testing the learning packages which were to be developed as self-instructional materials. These packages would allow the pupils to work at their own pace,

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although class teachers would be encouraged to monitor the pupils' progress at the several different stages of the project's development. The intention was to produce packages designed to meet the needs of pupils locally. They were to be presented in both English and Welsh, and, if appropriate, they will eventually be distributed to all the secondary schools in the principality. Over one hundred pupils were involved in the work of the project and teachers from 22 schools in the 3 local authorities cooperated with the testing of the written materials.

The Selection of Mathematical Topics

The committee in the first stages of the project's development paid considerable attention to the selection of suitable mathematical topics. It was agreed that these topics essentially should be an extension of the normal school curriculum, although the preparation of materials for such topics as spirals and helices should also be considered. The decision to develop particular topics was based upon the need to provide challenging mathematics for a selected group of pupils. It was intended to extend the pupils' knowledge and understanding of these topics and also to create a wider and deeper interest in their study of mathematics. Thus a topic was identified as being suitable for inclusion if it either consisted of new content ⟨ r extended the existing syllabus.

Guided by previous work on high attainers in mathematics and particularly influenced by the work of the Royal Institution (1983), a range of topics was produced and these included the following titles: The Fibonacci Sequence, Pythagorean Triples, Symmetry, The Value of Pi, and Investigation and Proof. In all, 12 topics were produced and these have now been translated into Welsh for use in schools where the medium of instruction is primarily through this language.

A particular feature of the work of the project in its first year was the considerable amount of direct contact Miss Hale, the Research Officer, made with the staff and pupils at the Project's schools. Several additional schools were then used for the second phase of the Project's development. These schools were given the topics and were asked to use them within the normal classroom setting. The considerable amount of feedback of information from this exercise, both written and verbal, meant that the packages could be amended to meet the requirements of the pupil and thus fulfil the aims of the project.

As part of the project's development, 3 Mathematics Days funded by a grant from the Standing Conference on Schools for Science and Technology were held at the university. These were most successful. Over 70 pupils and a number of teachers and advisors attended on each of three occasions. It was particularly pleasing to find that so many pupils turned up on a Saturday, and that some of them had travelled considerable distances in order to attend. The success of these days highlights the importance of the involvement of parents, pupils, teachers, advisors and university staff in the work of the project. It also allowed high attaining pupils from the schools involved to meet together in an informal manner and use the learning packages in their developmental stages.

The effectiveness of the packages was measured by the responses from both the pupils and their teachers who were involved with the work of the project. In this respect, the on-site evaluation was considered to be very important, and the oral and written responses from the teachers were used to modify the texts. Furthermore, the intentions and the content of the

learning materials were constantly monitored by the members of the steering committee who between them had a vast amount of mathematical experience and expertise to offer.

The National Curriculum and High Attaining Pupils

The report, *The National Curriculum: Mathematics for the ages 5 to 16* (DES, 1988) published in August as the response of the Working Group to a brief from the Secretary of State for Education and Science must rank as a significant publication in terms of its substantial and detailed contribution to both the teaching and learning of school mathematics. Importantly, the Group. which was set up in 1987 to provide the basis for a national curriculum in mathematics saw the task as both challenging and stimulating, and one which should not be underestimated, with a potential for raising the standards of pupil attainment at all ages and all levels of ability.

This was the first Working Party to be set up; others followed in the *core subjects* of English and science. Much of its recommendations were used later to provide attainment targets for programs of study within The National Curriculum which was laid before Parliament in March, 1989. There were, however, differences of opinion between the Groups' proposals and the eventual Orders which were accepted as part of the New Reform Act.

The National Curriculum was introduced in the Autumn of 1989 to all of the state maintained schools in England and Wales. This represented a major reform of educational practice; previously teachers had a considerable amount of freedom to choose the curriculum which they felt was appropriate to the needs of their pupils. However the demands of external examinations had always been prescriptive for teachers of the older pupils in secondary schools. Now, within the terms of the National Curriculum, the expectations are defined, although the teaching methods and the materials and resources to be used have not been specified.

The laudable aims for the National Curriculum are that it will *provide teachers with clear objectives for their teaching; children with identifiable targets for their learning; parents with accurate, accessible information about what their children can be expected to know, understand and be able to do, and what they actually achieve.* (The National Curriculum Council, 1989, pg. 1). Essentially, it is a framework dealing with the details of the curriculum. In mathematics, fourteen attainment targets are listed and each has ten levels of attainment. According to the Orders, the typical pupil within the age range 11 to 14 years should achieve levels 5/6, but the higher levels will be achieved by a minority of pupils only.

In particular, an examination of the program of study for level 8, which is the level to be achieved by high attaining thirteen year olds, shows that the skill expectancy is quite demanding. A range of skills are identified and they include the use of index notation to represent powers and roots, solving inequalities as well as using trigonometrical ratios. Moreover, in the targets *Using and Applying Mathematics* the notion of proof is established and is also supported within the *Handling Data* targets.

At a recent HMI conference for High Achievers in Mathematics (5 to 13) the question of the use of proof and rigor was given special attention. It was said that although the nature of proof is not appreciated before the age of 13, younger pupils do question, challenge and demand convincing demonstrations of mathematical statements. The nature of proof, in this sense, was seen to be relative: at some stages paper folding, for example, will be accepted

as an explanation, to be discarded later for more convincing evidence as the pupil's critical faculty develops (DES, 1989).

During the period of the Project's implementation, the proposals relating to the National Curriculum were published. An examination of these proposals shows that in the range of attainment targets there is substantial provision for the needs of high attaining pupils. The National Curriculum proposals endorse the point of view that bright children need to be sufficiently stretched if they are to fulfil their mathematical potential. Acknowledging this and as a guide to the teachers who might use the materials, it was decided to specify within the packages the links which existed with the attainment targets.

The scope of the mathematics shown at the attainment levels within the National Curriculum is wide ranging and reveals a coherent image of mathematics in five areas of mathematics, namely, number, algebra, measures, shape and space, and handling data. There is also a considerable emphasis on the challenging aspects of mathematics through an investigative approach. For the most able pupil, these interests will need to be exploited. In this respect, the topics which have been developed at Cardiff will have a particularly relevant role.

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UNDERSTANDING THE AFFECTIVE NEEDS OF THE GIFTED

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Special concerns regarding the gifted which were first addressed in the early 1900's still remain contemporary issues. This article describes the special guidance needs of gifted children and adolescents and argues that the needs of gifted should be dealt with in a systematic and comprehensive manner by government planning agencies and educational institutions. Specific areas of need discussed are (a) self-concept, (b) school adjustment, (c) interpersonal relations and difficulty with peers, (d) emotional and psychological problems and (e) career development. A clear need exists to recognize the uniqueness of gifted individuals and to value their potential contributions to society.

The roots of the gifted child movement can be traced back to G.W. Hall (1903, 1911). Hall influenced the field of child growth and development by stimulating both researchers and practitioners to focus on the development of pupil potential and to examine educational practices which either contributed to or hindered individual growth and development. The founding father of the gifted child movement, however, is generally considered to be Lewis Terman. Terman's (1925) longitudinal study of gifted children indicated that gifted children, in comparison with a general population, had a lower incidence of serious mental distur-

bances. Although critics assert that a major limitation of this initial research was that of sample bias and regard the study's findings as suspect, Terman's initial study is still regarded as an important bench-mark work.

Hollingsworth (1942) also contributed to the field of gifted education by investigations and longitudinal case studies of gifted individuals. The special concerns identified by her early research are still recognized as areas of need, and represent contemporary issues with regard to giftedness as well:

(1) The school environment does not accommodate the specific educational needs of gifted pupils; (2) successful peer relationships are often lacking and social skills are frequently underdeveloped; (3) a developmental lag usually exists between the intellectual and emotional development; (4) an opposition to authority resulting in social conflict sometimes occurs; (5) optimum social and emotional adjustment in adulthood is prevented by past developmental blocks; (6) due to a multiplicity of interests, vocational choices are difficult; (7) because of the expectations of significant others and society as a whole, stress and anxiety are frequently experienced.

Although the gifted subjects of Terman's (1925) study were judged to be well adjusted, with very few displaying suicidal predispositions or anti-social tendencies, later follow-up studies revealed that approximately 20% of the sample had experienced emotional crises at some point in their development (Coleman, 1980). Because the early Terman data had been widely interpreted to imply that gifted children had very few emotional problems and were not in need of specialized services or programmes, a major barrier to the development of appropriate curricula and to a recognition of the guidance needs of gifted children was imposed. Consequently, the Terman *myth* had the effect of reducing programmes and services for the gifted to low priority budget items in many instances (Gallagher, 1980; Leaverton & Hertzog, 1979; Thompson & Rudolph, 1983; Webb, Meckstroth & Tolan, 1982). Since gifted individuals collectively and individually were not perceived as representing a *felt area of need* by either professional caregivers or by society at large it is only relatively recently that the needs of the gifted are being addressed in a systematic and comprehensive manner by government planning agencies and educational institutions (Kerr, 1981; Webb, Meckstroth & Tolan, 1982; Whitmore, 1980).

Although no systematic framework or methodology was employed by pioneer counsellors of the gifted, intervention strategies placed importance on personality factors. Witty (1940) focused on understanding personality and behavioural characteristics while Strang (1951) investigated social and emotional needs of the gifted, bringing parents into the consultative process as well. Strang also advocated special provisions for the gifted in order to insure their optimum adjustment while calling attention to three major concerns if this was not accomplished: 1) The lack of life satisfaction and personal fulfilment for those who become maladjusted; 2) the misdirection of talent which could be misused in a socially destructive manner; 3) the loss of valuable resources to society.

Many other outstanding researchers and practitioners have added to an understanding of the emotional needs of the gifted. In the late 1950's major contributors to the counselling of gifted pupils were John Rothney, John Flanagan and John Gowan, each of whom *mentored* superior students and assumed a consulting role. Gowan was instrumental in developing

training programmes for counsellors of the gifted and in devising appropriate counselling services (Zaffrann & Colangelo, 1979). Although authorities presently differ regarding the nature and severity of psychological problems experienced by the gifted, currently there is agreement that the gifted child needs guidance in the area of personal development and in vocational planning (Gowan, 1978; Torrance, 1976; Zaffrann & Colangelo, 1977). Additionally, even though the basic guidance needs extended to all pupils may be required by the gifted, special guidance needs also have been identified (Culross, 1982; Perrone & Male, 1980). These special concerns must be addressed as well as services provided which may vary greatly from services provided to a general student population.

Special Needs of the Gifted:

Self-Concept

The self-concept has been defined as the picture an individual has of what he or she is like, built up slowly over time from experiences the child has with his/her own body and directly with the environment. An individual's behaviour is consistent with the self-image which is held and such an image is a factor in personal-social adjustment and in career development as well. Accordingly, the self-concept, or the beliefs individuals hold about themselves, are important and significant contributors to their achievements not only in school but to goal attainment in life as well. In sum, it is generally acknowledged that self attitudes are significantly associated with personal satisfaction and mental health.

Research on the self-concept of gifted individuals has produced conflicting results. Numerous investigations have established that gifted students hold high self-concepts in relation to their academic performance (Colangelo & Pfleger, 1978; Kelly & Colangelo, 1984; Ross & Parker, 1980; Tidwell, 1980). In considering perceptions of non-academic self-concept, however, investigations have produced ambiguous results, with many studies indicating that gifted students have poorer self-concepts when compared to their peers who are non-gifted (Ross & Parker, 1980; Winnie, Woodlands & Wong, 1982). Because the findings of the bulk of research studies have produced conflicting results, reasonable doubt exists about the self-attitude of the gifted.

One area of concern is the high level of performance expected by society, reflecting a problem typically experienced by members of any gifted population. Many gifted individuals view themselves as adequate, worthy and acceptable only if they achieve superior levels of task accomplishment. Consequently, performance anxiety and fear of failure often become major stressors, sometimes contributing to academic failure or fostering an obsessive desire for perfection. In the event that performance levels are poor, self-doubt, as well as feelings of anxiety and inferiority, may occur and may result in mood swings of depression and despair (Lajoie & Shore, 1980). Societal perceptions and expectations constitute negative influences and pressures and must be resolved by the gifted if healthy self-attitudes are to be maintained.

Society itself also produces a double-bind effect with regard to the gifted. Admiration and often *adulation* are displayed toward those who represent superiority, yet the darker societal forces of resentment and envy may also be present. Consequently, many gifted individuals become confused and anxious by societal attitudes which are inconsistent and ambiguous.

The gifted child's self-image can be enhanced by both parents and teachers. Educational

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institutions can evolve programmes that serve to help gifted students regard themselves in a positive light. Image building activities by parental caretakers as well as by educational personnel can be used to modify and improve gifted childrens' self-concepts. If we accept the postulate that self-concept is an intervening variable that can serve to either limit or positively affect developmental tasks, vocational, personal and social decisions, its importance is obvious and the development of self-esteem is essential in any programming for the gifted.

School Adjustment

School adjustment is a second area of difficulty. Numerous studies have indicated that many gifted pupils do not excel in the school environment, with some investigations reporting that approximately half of those who score in the top 5% on standardized tests do not fulfil their potential with equivalent school performances (Gallagher, 1975; Gowan, 1955; Terman & Oden, 1947). This trend is further highlighted by Mallis' (1983) study which compared a gifted adolescent population with a general population and found a higher proportion of school dropouts in the gifted sample. The special academic problems of the gifted thus have been well documented with regard to underachievement (Jackson, Cleveland & Merenda, 1975; Newland, 1976; Perkins & Wicus, 1971; Whitmore, 1980; Zilli, 1971) as well as with regard to perfectionism and overachievement (Roeper, 1982; Simpson & Kaufman, 1981).

Many explanations of poor school productivity by the gifted have been given. Strang (1960) characterized the gifted child as being *conflict habituated* and as interacting more intensely with the environment and thus experiencing more conflicts in the learning situation because of this *intensity*. Dabrowski similarly proposed a special *overexcitability* temperamental factor and asserted that this disposition impacted on five areas: (1) psychomotor, (2) sensory, (3) cognitive, (4) imaginative, and (5) emotional. Because of this alleged characteristic he viewed the gifted learner as being predisposed to learning difficulties and underachievement (Dabrowski & Piechowski, 1971). The investigation of Webb et al. (1982) also found high levels of energy in the gifted; furthermore, subsequent researchers have discovered a relationship between high levels of sensitivity to stimuli and *overexcitability* (Silverman, 1983).

Bricklin & Bricklin (1967) and Fine (1967) found poor teaching to be a major cause of underachievement in gifted students. This could lead to boredom and lack of motivation. Because many gifted students are divergent and independent thinkers they may also resist *routine learning* and conformity in approaching the learning task. Consequently, they may be perceived as an oppositional force in the classroom setting and as a threat to the teacher's authority and competence. This factor renders them vulnerable to criticism from those in authority and results in confusion about their role and identity as students, and ambiguity about the appropriate use of their intellectual abilities (Gowan & Demos, 1964; Rothney & Koopman, 1958). Both parents and teachers may collude not only to restrain gifted students' highly active and questioning approach to issues and ideas but to submerge their nonconforming style as well. Consequently intense pressures may be exerted to *toe the line* and not *rock the boat*.

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A major educational problem concerns the mismatch of learning/teaching styles. The manner in which gifted students approach tasks must be accommodated if optimum response to the learning environment is to be accomplished. Whitmore (1980) cites incompatible teaching/learning styles as not only frustrating for the gifted learner, but as one of the reasons for the large number of gifted underachievers as well. She acknowledged that the *affirmation of the individual's distinct learning style has positive effects upon his self-esteem and achievement motivation* (p. 271).

Selected learning style elements have been found to discriminate between gifted and nongifted students. Studies (Cody, 1983; Griggs & Dunn, 1984) have found that the gifted prefer low structure and flexibility in the learning situation and that gifted pupils also tend to be highly persistent, more self-motivated than teacher-motivated and prefer to learn alone rather than with peers. Because findings indicate there is a significant improvement in academic achievement (Brown, 1978), student attitudes (Martin, 1977; Piazzo, 1981) and student behaviour (Dunn, 1981; Tannenbaum, 1982) when students' learning style preferences are accommodated through complementary teaching styles, learning style is a salient factor operating in the educational environment, particularly with respect to the needs of the gifted pupil.

Interpersonal Relationships and Difficulties with Peers

A number of investigations have established the difficulty of the gifted in establishing interpersonal relationships with peers (Webb et al., 1982; Whitmore, 1980). Being labelled *gifted* not only creates a stigma which initially contaminates interpersonal interactions but contributes toward maintaining interpersonal barriers as well. Because of the discrepancy between their intellectual and emotional development it is difficult for the gifted to find peers in their age group who share similarity in cognitive ability as well as a match of interests. Feelings of frustration, isolation and alienation may result and these feelings may be exacerbated by peer ridicule, by taunting labels such as *egghead* and by slurs implying that the gifted are somehow *abnormal*. In part the roots of this particular problem are culture-bound and arise from the negative and envious attitudes of most societies toward those members who have been identified as superior (Gallagher, 1975; Gowan & Bruch, 1971; Torrance, 1962, 1965). The impact of encountering such difficulties for the gifted may result in less social interaction and in underdeveloped social skills. For example, one recent study confirmed that a close, intimate interpersonal relationship was highly valued by the gifted (Kline & Meckstroth, 1985).

Barriers to peer companionship are sometimes instituted by the gifted themselves, who may not always be sensitive to and accepting of others who are perceived as being more dissimilar than similar to themselves. Consequently, many gifted pupils may distance themselves psychologically and even physically from their classmates by working alone, and their own voluntary withdrawal may be perceived by others as arrogant and condescending. Social ostracism may result, often leading to social conflict. Accordingly, gifted children need help in developing social skills, peer relationships, and in resolving interpersonal conflicts that are experienced. Supportive guidance can help them become aware of the impact of their own behaviour on interpersonal relationships and can improve their communication skills and social sensitivity.

Emotional and Psychological Problems

Although there is disagreement on the exact nature and severity of psychological problems experienced by the gifted (Burt, 1975; Schmidt, 1960) common agreement exists that many gifted individuals experience emotional and psychosocial difficulties. Often there is a developmental lag in their advanced intellectual abilities when compared to the level of development achieved in their social and emotional areas. As Hollingsworth said, *To have the intellect of an adult and the emotions of a child combined in a childish body is to encounter certain difficulties.* (1942, p. 282).

In addition to problems created by the discrepancy between their intellectual level of functioning and their level of functioning in other areas of their lives, crises may also reflect difficulties in any of the following areas: (a) parent-child interactions and family conflicts, (b) feelings of inadequacy and a negative self-concept, (c) difficulty in peer relationships and the attendant social isolation, (f) poor school adjustment, and (g) the stressful conditions and unusual pressures exerted on them by parents, teachers, peers and society because they have been identified as *gifted*.

Recent investigations also disclose an increase in depression and suicide among gifted pupils (Webb, Meckstroth & Tolan, 1982). Presently, exact statistics on the number of gifted individuals attempting or committing suicide are not available. In an exhaustive review of research on adolescent suicide, however, Lajoie & Shore (1981) concluded that *suicidal statistics and theories about the causes of suicide are... most accommodating to the idea of overrepresentation of the gifted...* (p. 141). In support of this assertion, Mallis' (1983) study compared a general population with a gifted sample and found that a higher proportion of gifted adolescents commit suicide. Additional researchers have also addressed the issue of suicide as a salient variable in the lives of the gifted (Bowers, 1978; Delisle, 1982; Fox, 1971; Lemov, 1979; Lester & Lester, 1971).

It must be remembered that although gifted children have the same universal needs as all children, for security, love, esteem and the fulfilment of basic physiological requirements (Maslow, 1970), they also have special needs which must be met. A number of investigators (Delisle, 1982; McKerry, Tichler & Kelly, 1982; Seiden, 1966) have identified the following factors as contributing to the emotional and psychological problems of the gifted: (1) *perfectionism* and the perception that this is the only acceptable level of performance; (2) social expectations; (3) intellectual acceleration but developmental lag - particularly in the emotional and social realm; lack of social skills; (4) need to explore, discover and create which can result in difficulty in school adjustment and achievement and be a source of irritation to teachers and educational personnel; (5) problems of underachievement and school dropout and career development; (6) depression, suicidal behaviour; emotional factors such as social alienation, self-doubt and uncertainty over social roles.

Career Development

Gifted students also experience career development problems (Sanborn, 1979; Zaffrann & Colangelo, 1979) which may be the result of having numerous interests and talents in more than one area. Frequently their energy becomes so diluted that commitment to any one interest is lacking and they are less likely to perform at their maximum capability in any one

endeavour. Areas of interest that fail to be pursued and undeveloped talents may produce feelings of guilt (Khatena, 1982; Perrone, Karshner, & Male, 1979). In addition to a multiplicity of interests and talents, the following problems of the gifted that may impact on career development have also been identified (Herr & Watanabe, 1979; Hoyt & Hebeler, 1974; Rodenstein, Pfleger & Colangelo, 1977): (1) high expectations generated both by themselves, parents, teachers and society complicate career choices; (2) professional careers often favoured by gifted individuals require long expenditures of time and training and necessitate early vocational choices; (3) work is not simply an *occupation* but rather an instrumental means of self-expression as well as a lifestyle; (4) atypical interests and pursuits often result in social alienation and lack of a peer reference group; (5) mentors and adult role models in the area of interest are often lacking; (6) gifted women face special problems in career development.

Because of the multiple interest and talent patterns among the gifted many gifted students have the potential to be successful in many careers (Sanborn, Pulvino & Wunderlin, 1971; Sanborn & Wasson, 1966; Strang, 1956). Accordingly, in order for school personnel to be responsive to the needs of most gifted pupils such pupils need access to more occupational information and more assistance with career planning, because of the many more career options available and because of their multipotentiality.

Summary

All too often the cognitive needs of the gifted have been met but their affective needs have been ignored (Treffinger, Borgers, Render & Hoffman, 1976). Very few teachers, counsellors, psychologists or even specialists working with the gifted have acknowledged a unique set of affective needs which set them apart from a general population. Frequently the school environment does not accommodate the specific educational needs of gifted pupils. Additionally, a gap between intellectual and emotional development usually exists, with successful peer relationships often lacking. Social conflict with the broader society may also be present with many gifted individuals feeling the need to challenge the status quo and oppose *authority*. Even in adulthood, social and emotional adjustment can be affected by early developmental blocks. Additional stressors are a multiplicity of interests which make the narrowing of vocational choices difficult, and the expectations of high performance held by parents, friends and society as a whole. For these reasons, guidance and counselling strategies within the educational setting should accommodate the special needs of the gifted and such services should form a core of support for the developing child, with counsellors acting as advocates for the gifted in the educational institution. Counsellors and educators can surmise that gifted students are a great source of talent which must be nurtured if these individuals are to experience personal fulfilment and self-actualization. For this to be accomplished educators and social service personnel must recognize the uniqueness of these individuals and value their potential contributions to society.

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IS THE PREFERRED LEARNING STYLE OF GIFTED STUDENTS

A STATE OR TRAIT?

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The purpose of this study was to examine the extent to which the expressed learning style preferences of gifted students were consistent from subject area to subject area. Three hundred and forty-two students identified as intellectually gifted were give the State Approach to Learning Style Questionnaire and the Learning Style Inventory. Internal consistency and correlational analyses indicated that respondents were expressing preferences in a trait-like manner. A multivariate analysis of variance indicated a significant main effect for school level. Discriminant analysis results for the school level effect produced two significant discriminant functions. The first discriminant function indicated that elementary students are more likely than junior high school or senior high school students to prefer to play a learning game involving movement. The second discriminant function seemed to differentiate junior high school students from elementary and senior high school students. Junior high school students expressed preferences for listening to music and study breaks while expressing dislike for listening to lectures.

There are numerous approaches to learning style definition, assessment and curriculum implications (R. Dunn, DeBello, Brennan, Krimsky & Murrain, 1981). A learning style is

an approach used by individuals to absorb, retain and process new information (R. Dunn, 1983). The promise of learning style assessment has been stated by Keefe (1979), who views learning style diagnosis as *the most powerful leverage yet available to educators to analyze, motivate and assist students in school* (p. 132). Research reviewed by R. Dunn (1983) suggests that individuals can identify their own learning style and benefit when taught through their preferred learning style. All currently available instruments view learning style as a *trait*, that is, a person is believed to have a consistent approach to learning new material regardless of the subject area. In contrast to this trait conceptualization, it is possible to view preferred learning styles as a *state*, which varies from subject area to subject area. The purpose of the present study was to examine the extent to which the expressed learning style preferences of gifted students were consistent from subject area to subject area, across gender and school levels.

Method

Subjects

Three hundred and forty-two students identified as gifted by a country school system according to West Virginia's (1984) *Regulations for the Education of Exceptional Students* comprised the subject pool. The West Virginia state definition requires a score on a comprehensive test of individual intelligence to be two standard deviations above the mean with possible consideration of one standard error of measurement. Three hundred and thirty-four subjects, who provided complete data sets on the State Approach to Learning Style Questionnaire were included in the study. There were 179 males and 155 females. There were 122 students at the elementary school level, 137 students at the junior high level, and 75 students at the senior high level.

Procedures

All subjects were given the Learning Style Inventory (R. Dunn, K. Dunn & Price, 1985) along with the State Approach to Learning Style Questionnaire developed by the investigator to explore the state-trait aspects of learning style. The State Approach to Learning Style Questionnaire asks respondents to indicate their preferences for 12 learning conditions when learning English, mathematics, social studies, and science. Presentation of the school subjects was counterbalanced. Administration of the two instruments was also counterbalanced.

Instrumentation

The Learning Style Inventory (R. Dunn, K. Dunn & Price, 1985) is a comprehensive measure of learning style preference. Form 6, a 104 item, 5-point, Likert-type self-report inventory was used for students in grades 6 through 12. Form 7, a 104 item 3-point Likert-type self-report inventory was used for students in grades 3, 4, and 5. The items on both scales are identical. Each scale assesses an individual's learning style preference in 22 areas (R. Dunn, K. Dunn, & Price, 1985). The areas are as follows: (1) Noise level (quiet or sound); (2) Light (low or bright); (3) Temperature (cool or warm); (4) Design (informal or formal); (5) Unmotivated/motivated; (6) Impersistent/persistent; (7) Irresponsible/responsible; (8)

Structure (needs or does not need structure; (9) Learning alone/peer oriented learning; (10) Authority figures present; (11) Prefers learning in several ways; (12) Auditory preferences; (13) Visual preferences; (14) Tactile preferences; (15) Kinesthetic preferences; (16) Requires intake; (17) Functions best in evening/morning; (18) Functions best in late morning; (19) Functions best in afternoon; (20) Mobility; (21) Parent figure motivated; (22) Teacher motivated.

The scales were developed through content analysis and factor analysis. Most of the research reported in the manual describes early versions of the instrument. Internal consistency data is reported for Form 6. Seventeen of the 22 scales had reliability estimates equal to or greater than .60. The five scales with estimates .59 or below were visual preferences, auditory preferences, functions best in late morning, prefers learning in several ways and structure.

The State Approach to Learning Style Questionnaire was developed by this investigator for this particular study to assess the state-trait aspects of learning style preferences. The questionnaire provides a direct assessment of learning style preferences in the context of specific school subjects. The instrument asks respondents to rate how strongly they would LIKE or DISLIKE each of twelve learning conditions when learning English, mathematics, social studies and science. The twelve conditions, which assess some of the same dimensions as the Learning Style Inventory, are as follows: (1) listening to music; (2) having the room dimly lit; (3) have a room temperature at 68 degrees; (4) sitting in a soft, comfortable chair; (5) having 5 minute study breaks every 20 minutes; (6) learning the material on your own; (7) having the teacher frequently check on you; (8) listening to a lecture; (9) reading a textbook; (10) playing a learning game involving movement; (11) having a snack available while studying; (12) studying the material as the first subject of the day.

The conditions were selected to include items from each of the four major categories (environmental, emotional, sociological, psychological) of the Learning Style Inventory. Sampling of the conditions was necessary to facilitate data collection. An attempt was made to sample independent dimensions based on examination of Learning Style Inventory intercorrelations reported in the manual. The school subjects were selected because they represent subjects studied students at all three levels - elementary, junior high school, and senior high school. A Latin-Square approach was used to counterbalance the order of presentation of the school subjects. Tables 1 and 2, which are described in the Results section, provide psychometric information about the instrument.

Data Analysis

A series of internal consistency analyses were done using Cronbach's (1951) *alpha*, to determine the extent to which item responses appeared state-like vs. trait-like. Low internal consistency estimates would indicate state-like responses. High internal consistency estimates would indicate trait-like responses.

A correlational analysis was used to determine the extent to which individual learning conditions were interrelated providing evidence of the convergent and discriminant validity of the conditions. The pairwise deletion option was used to handle missing data in the correlational analysis. The level of statistical significance was set at .001.

A multivariate analysis of variance was performed to examine the consistency of learning style preferences across gender and school level. Discriminant analysis was used to follow-up significant multivariate F ratios. The level of significance was set at .05.

All analyses were performed using subprograms in the SPSS-X software system (SPSS, Inc., 1983).

Results

A series of internal consistency analyses were performed to determine the extent to which each of the learning conditions were interrelated. Means, standard deviations, average inter-subject correlations and reliability estimates are shown in Table 1. Results indicated that respondents tended to have similar preferences for each learning condition regardless of subject area. Eleven of the conditions had internal consistency estimates greater than .80. Ten of the conditions had internal consistency estimates greater than the internal consistency

Table 1

Internal Consistency of the Twelve Learning Conditions on the State Approach to Learning Style Questionnaire (N=334)

Condition	M	SD	Mean Inter-Subject Correlation	Alpha
1. listening to music	11.70	3.53	.55	.83
2. having the room dimly lit	8.10	3.44	.68	.89
3. having a room temp. at 68 degrees	11.16	3.33	.76	.93
4. sitting in soft, comfortable chair	14.41	2.38	.62	.87
5. having 5 min. study breaks every 20 min.	12.54	3.33	.66	.88
6. learning the material on your own	10.17	3.40	.53	.82
7. having the teacher frequently check on you	8.52	3.43	.61	.86
8. listening to a lecture	7.28	3.37	.57	.84
9. reading a textbook	8.97	3.19	.51	.81
10. playing a learning game involving movement	11.19	3.76	.69	.90
11. having a snack available while studying	13.96	2.86	.76	.93
12. studying the material as first subject of the day	12.22	7.38	.09	.29

estimateson comparable scales of the Learning Style Inventory. Responses for one condition, *studying the material as the first subject of the day*, varied by subject area.

A correlational analysis was performed to determine the convergent and discriminant validity of the conditions. Results indicated that preferences for using a learning condition in one subject were related to preferences for using the same condition in another subject. Preferences for the various conditions tended to be independent. There was some tendency for subjects who preferred listening to music to also prefer having the room dimly lit. There was a tendency for respondents who preferred learning the material on their own to prefer to have a snack available while studying.

Total scores for each learning condition were correlated with scores on the Learning Style Inventory (LSI). Correlations between conditions and hypothesized comparable Learning Style Inventory scales are depicted in Table 2. Results indicated that the conditions, *listening to music, having the room dimly lit, sitting in a soft, comfortable chair, requiring intake*, were significantly related to hypothesized scales on the Learning Style Inventory. The condition, *having the teacher frequently check on you*, was related to the Teacher Motivated Scale on the LSI but unrelated to the Responsible Scale on the LSI. Other conditions were unrelated to hypothesized comparable scales on the Learning Style Inventory indicating that in some cases, the two instruments are measuring different concepts.

Table 2
Correlation Between Learning Condition and Hypothesized Comparable Learning Style Inventory Scale

Learning Condition	Learning Style Scale	r
listening to music	Noise	.38*
having the room dimly lit	Light	-.60*
having a room temp. of 68 degrees	Temperature	-.03
sitting in a soft, comfortable chair	Design	-.29*
having 5 min. study breaks		
every 20 min.	Mobility	.18*
learning the material on your own	Learning Alone/Peer Oriented	-.17
having the teacher frequently check		
on you	Responsible	-.03
	Teacher Motivated	.27*
listening to a lecture	Auditory preference	.03
reading a textbook	Visual performance	.15
playing a learning game involving		
movement	Kinesthetic preferences	.23*
having a snack available while		
studying	Requires intake	.49*
studying the material as the first		
subject of the day	Morning/evening	.17

*$p < .001$

A multivariate analysis of variance was performed to see if there were any differences in preferences for learning conditions across gender and school levels. Means and standard deviations for each of the 12 learning conditions by school level and gender are shown in Table 3. *MANOVA* summary results are shown in Table 4. Results indicated a significant main effect for school level (Wilks' *lambda* = .73; $F(24,634) = 4.52$, p < .05. The main effect for gender and the Gender X School Level interaction were not statistically significant. Discriminant analysis results for the School Level effect are shown in Table 5. Two significant discriminant functions separated the groups. The first function indicated that elementary students were more likely than junior high school and senior high school students to prefer to play a learning game involving movement. The second discriminant function seemed to differentiate junior high school students from elementary and senior high school students. Junior high school students expressed preferences for listening to music and study breaks, while expressing dislike for listening to lectures.

Table 3

Means and Standard Deviations of the Learning Conditions by School Level and Gender

Condition	Elementary				Junior High				Senior High			
	M (*n*=66)		F (*n*=56)		M (*n*=73)		F (*n*=64)		M (*n*=40)		F (*n*=35)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
listening to music	11.96	3.31	11.93	3.13	13.19	2.55	12.61	2.73	11.88	3.00	12.00	2.36
having the room dimly lit	7.97	3.59	8.63	3.69	8.33	3.48	8.23	3.85	7.63	2.93	7.31	2.18
having room temp. of 60 degrees	10.91	3.35	11.34	3.26	10.92	3.83	11.23	3.51	11.20	2.52	11.66	2.90
sitting in soft, comfortable chair	14.79	2.32	15.14	1.93	14.34	2.24	14.19	2.50	13.80	2.57	13.77	2.61
having 5 min. study breaks every 20 min.	12.38	3.61	12.09	3.64	13.03	3.28	13.22	2.75	11.80	3.51	12.17	2.99
learning the material on your own	9.76	3.85	10.21	3.63	10.45	3.45	10.38	3.39	9.80	2.97	10.37	2.49
having the teacher frequently check on you	8.85	3.69	8.00	3.53	8.38	3.52	8.94	3.57	8.10	2.75	8.74	3.03
listening to a lecture	7.41	3.57	7.16	3.42	6.81	3.32	6.77	3.15	8.23	3.33	8.11	3.23
reading a textbook	9.74	3.34	9.71	3.68	8.96	3.24	7.78	2.72	8.76	2.55	8.71	2.91
playing a learning game involving movement	13.32	3.02	13.93	2.85	11.77	3.91	11.11	3.97	9.98	3.72	10.00	3.28
having a snack available while studying	14.59	2.59	13.95	2.91	14.15	3.05	13.83	2.60	13.55	3.26	13.11	2.74
studying material as first subject of day	12.08	7.21	12.86	8.42	11.92	6.73	11.16	7.12	12.60	7.28	13.63	7.93

Table 4
MANOVA Summary Table

Effect	Wilks lambda	df effect	df error	approx F
Gender	.98	12	317	.65
School level	.73	24	632	4.64*
Gender X School level	.96	24	632	.591

*p < .05

Table 5
Standardized Discriminant Function Coefficients and Structure Coefficients for the School-Level Effect

Learning Conditions	Function 1 Standardized Discriminant Function Coefficients	Structure Coefficients	Function 2 Standardized Discriminant Function Coefficients	Structure Coefficients
listening to music	.33	.12	.47	.58
having room dimly lit	-.19	-.12	.13	.30
having a room temp. of 68 degrees	.08	.04	-.18	-.14
sitting in a soft, comfortable chair	-.26	-.36	-.02	.13
having 5 min. study breaks every 20 min.	.25	.07	.42	.56
learning the material on your own	.15	.06	.09	.18
having the teacher frequently check on you	.20	.03	.23	.12
listening to a lecture	.24	.07	-.48	-.60
reading a textbook	-.48	-.32	-.09	-.35
playing a learning game involving movement	-.78	-.75	.15	.25
having a snack available while studying	-.29	-.20	-.15	.25
studying the material as the first subject of the day	.12	-.01	-.22	-.33

Discussion

Results of the internal consistency and correlation analyses suggest that the responses of gifted students on the State Approach to Learning Style Questionnaire appear more trait-like than state-like. This finding supports the trait conceptualization of learning styles underlying currently available learning style assessment instruments. This finding needs to be replicated using students of varying levels of ability before more sweeping generalizations about the trait-state nature of learning styles can be made.

Results of the multivariate analysis of variance indicate that there are developmental differences in the learning style preferences of gifted students. This finding is consistent with the conclusion of a study by Jones and Pyryt (1987), which examined cross-sectional differences on the Learning Style Inventory. This finding is also consistent with research conducted by Price, R. Dunn & K. Dunn (1977) using a sample of 1836 subjects from six states. In contrast to the Jones & Pyryt (1987) study, no gender differences in learning style preferences were found in the current study.

It should be noted that the State Approach to Learning Style Questionnaire samples conditions primarily from the environmental and physiological dimensions of the Learning Style Inventory. It is possible that the sociological and emotional aspects of learning style appear more state-like. Correlations between selected learning conditions on the State Approach to Learning Style and modality preference indicators on the Learning Style Inventory are especially low. It's possible that conditions, such as *listening to a lecture* and *playing a learning game involving movement*, are closer to the instructional strategies measured by Renzulli and Smith's (1978) Learning Style Inventory.

Future research should incorporate a broader sampling of learning style conditions and additional learning style instruments, use students of varying levels of ability at the three school levels, and employ a longitudinal or cross-sequential rather than a cross sectional design in order to provide a more definitive answer to questions about the stability of learning style preferences across subject area, gender and school level.

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FAMILY PERCEPTIONS AND SELF-PERCEPTIONS: A STUDY OF GIFTED CHILDREN

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Family strengths, satisfaction and parent-child communication of gifted children, and their relationship to children's self-perceptions were studied. Mothers, fathers and gifted children, and families of normal peers, completed three family scales. The children, grades 4 and 7, also completed a domain-specific self-perception scale and an intrinsic/extrinsic orientation scale. No major differences in family perceptions were found between families of gifted and non-gifted as groups, but several differences were found pertaining to the child's ratings of family. Gifted children's perceptions of family strengths and satisfaction were significantly related to scholastic competence and intrinsic motivation, while non-gifted children's perceptions were related to non-cognitive aspects of self and extrinsic motivation. Parent-child communication, as rated by mothers of the gifted, was significantly related to the child's global and non-cognitive aspects of self.

Research on families of gifted children had made some progress in the last decade. An earlier review of the literature (Colangelo & Dettman, 1983) concluded that there was a lack of empirical research and that much of the literature on parents and family characteristics of

gifted children had been based on common sense rather than empirical evidence. Since then a number of studies on this topic have been reported (e.g., Ballering & Koch, 1984; Colangelo & Brower, 1987; Cornell, 1984; Cornell & Grossberg, 1987; Green, Fine, & Tollefson, 1988; Karnes & D'Ilio, 1988; McGowan, 1986). However, a recent literature review concluded that more research is needed because of the complexity of the relationships among family variables (Olszewski, Kulieke, & Buescher, 1987). It would seem that many important issues and methodologies related to families of the gifted remain to be addressed. An important research question is: *What are the family perceptions of strengths, satisfaction and parent-child communication when the child is gifted, and how are these perceptions related to the gifted child's self-perception of competence?* This question is important in that it approaches the study of families of the gifted by focusing on the strengths, or positive aspects.

In a study of the influence of giftedness on the family, Cornell (1984) found that parents who perceive their child as gifted are more proud of their child and report a closer parent-child relationship than parents who do not perceive their child as gifted. Families with children in programs for gifted were also found to differ from those with children in regular class. Cornell's subjects were 42 families with children 6 to 11 years of age. Measures of parent pride and closeness in parent-child relationship were found to be rather global, indicating a need for more psychometrically sound measures to be administered. In another study Cornell and Grossberg (1987) found mutually supportive (Cohesion) and open family relationships (Expressiveness) to be more important to the gifted child's self-esteem and overall adjustment than are specific family activities or value orientations. The subjects for that study were 83 families with at least one child enrolled in a gifted program, with children's ages from 7 to 11 years. It would be useful to determine if the reported relationship was the same for a non-gifted group.

McGowan (1986) also found gifted adolescents' perceptions of family characteristics of cohesion, expressiveness, and conflict to be strong predictors of their self-esteem level, but again the study did not have a non-gifted comparison group. Both the McGowan (1986) and the Cornell and Grossberg (1987) studies used global measures of student self-concept: the Coopersmith Self-Esteem Inventory (Coopersmith, 1981) and Rosenberg Self-Esteem Scale (Rosenberg, 1965), although a teacher-completed measure of Behavioural Academic Self-Esteem (Coopersmith & Gilberts, 1982) was added in the latter study. However, the measures in neither study adequately addressed the multidimensional nature of self concept, which requires a more domain-specific approach to measurement. The present study, therefore, used a domain-specific approach, Harter's Self-Perception Profile for Children (1985), to measure self-concept. Given the gifted child's tendency to be curious and challenge-seeking, it would be of interest to include motivational variables in the study to explore their possible relationship to family strengths, satisfaction and communication.

Three specific questions were addressed in the study: 1) Do families of gifted and non-gifted students differ in their perceptions of family strengths, satisfaction, and parent-child communication? 2) What is the degree of agreement in perception of these family variables among family members, the child, the mother and the father? 3) What is the relationship between perceived family strengths, satisfaction and parent-child communication and the gifted child's self-perception of competence and motivational orientation?

Method

Subjects

The study sample included 49 intellectually gifted and 49 non-gifted students in grades 4 and 7 from a large urban public school system in western Canada, and their parents. The gender distribution by group and by grade was about equal, with a total of 48 girls and 50 boys. The gifted students were all in gifted programs, segregated and regular classroom, and had been identified as gifted based mainly on an IQ of 130 or above on the Wechsler Intelligence Scale for Children-Revised. The gifted subjects were randomly chosen from all grade 4 and 7 children in gifted programs. The non-gifted control subjects were randomly drawn from the same classrooms as the gifted subjects in regular class settings. Two age groups were chosen, grades 4 and 7, because of the differing parent-child relationship as a function of child's age, and because grade 7 represents that important time of early adolescence.

Of the 98 children who participated in the study, only 42 mothers and 37 fathers of the gifted children, and 36 mothers and 31 fathers of control children actually completed the family scales. Thus the N for the comparison between the gifted and control families as a complete unit of father, mother and child, was 68 (37 gifted and 31 control families).

Measures

The three family measures used in the study were taken from the Family Inventories by Olson , McCubbin, Barnes, Larsen, Muxen, and Wilson (1982). The Family Strengths Scale is a 12-item scale measuring family pride and accord (a family's sense of competency), with a Cronbach Alpha reliability coefficient of .83 for the total score. The Family Satisfaction Scale is a 14-item scale measuring family satisfaction on the dimensions of family cohesion and adaptability. It taps one's happiness with the overall functioning of the family. The total score, with a Cronbach Alpha coefficient of .92, was used. The Parent-Adolescent Communication Scale, with minor changes in wording for use with the grade 4 children, is a 20-item scale tapping open family communication and problems in family communication. The Cronbach Alpha reliability coefficient is .88 for the total scale. Four sets of scores were obtained: fathers' ratings, mothers' ratings, children's ratings about their communication with their fathers, and children's ratings on their communication with mothers.

The Self-Perception Profile for Children (Harter, 1985) is a 36-item instrument with six separate subscales tapping five specific domains (Scholastic Competence, Social Acceptance, Athletic Competence, Physical Appearance, and Behavioural Conduct), as well as Global Self-Worth. The scale's factorial validity has been established, clearly distinguishing the separate domains; and the internal consistency reliabilities range from .71 to .86 for the various subscales.

The Scale of Intrinsic Versus Extrinsic Orientation in the Classroom (Harter, 1981) is a 30-item instrument tapping five dimensions of a child's intrinsic versus extrinsic motivational orientation. These consist of Preference for Challenges vs. Preference for Easy Work Assigned; Curiosity/Interest vs. Pleasing the Teacher/Getting Grades; Independent Mastery vs. Dependence on Teacher; Independent Judgement vs. Reliance on Teacher's Judgement; and Internal Criteria vs. External Criteria for Success/Failure. Internal consistency reliabilities range from .68 to .84 for the various subscales.

Procedures

After receipt of parental consent, the Self-Perception and the Intrinsic/Extrinsic Orientation Scales plus the three family scales were administered to the students in small groups at school. Copies of the three family scales were also sent home to the parents. The parents were asked to respond to the items *separately on their own without comparing notes* with their spouse, and to return the completed scales in a stamped, self-addressed envelope.

Results

Group Comparisons

To determine if families of the gifted and control students differ in their family perceptions, a 3-factor (group X grade X gender) analysis of variance with respondents (father, mother or child) treated as repeated measures, was performed on all the family variables. For this analysis, the family was treated as a unit and only families with complete data from father, mother and child were included. Thus the N was reduced to 68 for family strengths and family satisfaction, and 67 for parent-child communication. Table 1 presents the mean scores of the family measures for the three respondent groups.

Family strengths. For family strengths (pride and accord), no significant overall main effects for group, grade nor gender were found. There was, however, a significant overall group X grade X gender interaction effect, ($F (3,58) = 5.23, p = .003$), largely attributable to the child's ratings, ($F (1,60) = 6.73, p = .01$), and to the mother's ratings, ($F (1,60) = 6.29$, $p = .02$). Post hoc analyses showed gifted grade 7 girls to perceive fewer family strengths than control grade 7 girls, and mothers of gifted grade 4 boys to perceive fewer family strengths than mothers of control grade 4 boys. As to gender and grade differences, control grade 4 girls were found to perceive fewer family strengths than control grade 4 boys; and mothers of control grade 7 boys to perceive fewer family strengths than mothers of control grade 4 boys.

Family Satisfaction. No significant overall main effects for group, grade, or gender or interaction effects were found for family satisfaction for families as a whole. There was a significant group difference in the child's ratings, (univariate($F (1,60)$, p = .02), showing gifted children less satisfied with their families than control children. There was also a significant group X gender interaction for father's ratings, (univariate ($F (1,60) = 5.30, p = .03$), showing fathers of gifted girls to be more satisfied with their families than fathers of gifted girls.

Parent-child communication. No significant overall main effects for group, grade, or gender were found for parent-child communication. But there was a significant overall group X grade X gender interaction effect, ($F (4,56) = 2.56, p < .05$), which was largely attributable to the child's ratings of father-child communication, univariate ($F (1,59) = 5.56, p = .02$). When the respondents were looked at separately, a significant grade effect for father's ratings was found, univariate ($F (1,59) = 4.51, p < .05$), showing fathers of grade 4 children to perceive a more open parent-child communication than fathers of grade 7 children. A significant gender effect was also found for the child's ratings of father-child communication, (univariate $F (1,59) = 6.28, p = .02$). But this gender effect was qualified by the significant overall group X grade X gender interaction effect, attributing the gender

difference to grade 4 boys reporting a more open father-child communication than grade 4 girls. Post-hoc analyses showed a more open father-child communication for control grade 7 girls than for either gifted grade 7 girls, or control grade 4 girls.

Table 1

Means and *SD*'s of Family Strengths, Family Satisfaction and Parent-Child Communication Scores for 3 Respondent Groups

	Gifted (n=37)				Control (n=31)			
	Grade 4		Grade 7		Grade 4		Grade 7	
	F	M	F	M	F	M	F	M
n =	12*	8	7	10	6	7	8	10
F. Strengths								
Child 46.1		45.6	39.9	45.8	43.5	53.6	48.0	46.2
(8.5)		(3.5)	(9.2)	(8.4)	(5.5)	(5.4)	(5.6)	(7.2)
Mother 50.6		46.0	48.0	49.3	46.8	52.9	50.5	46.1
(6.2)		(5.0)	(6.1)	(7.6)	(5.8)	(2.3)	(5.6)	(9.5)
Father 50.5		49.0	46.7	47.0	46.7	47.9	45.6	49.3
(6.8)		(7.3)	(4.9)	(9.2)	(6.4)	(7.6)	(6.5)	(6.9)
F. Satisfaction								
Child 50.6		50.0	46.1	51.9	51.3	57.9	55.0	53.5
(11.0)		(4.8)	(6.2)	(7.8)	(6.2)	(9.2)	(5.7)	(6.8)
Mother 54.3		48.4	50.1	51.2	46.7	49.4	52.9	50.3
(6.1)		(4.3)	(7.2)	(10.0)	(6.7)	(3.1)	(7.5)	(9.5)
Father 54.5		46.4	53.1	49.0	50.3	50.1	48.1	54.0
(6.5)		(6.2)	(7.2)	(8.8)	(6.7)	(8.3)	(6.8)	(10.6)
Parent-Child Communication								
Ch.-M 73.4		76.1	68.4	71.2	70.7	78.6	78.0	72.5
(13.9)		(9.7)	(16.8)	(15.0)	(11.4)	(10.1)	(12.0)	(10.5)
Ch.-F 68.4		72.5	59.3	69.7	59.0	76.3	74.5	71.2
(14.3)		(10.6)	(10.8)	(11.7)	(7.1)	(10.6)	(13.5)	(9.1)
Mother 83.2		85.4	80.6	82.3	77.3	83.4	81.0	80.5
(9.2)		(6.1)	(9.0)	(9.6)	(7.2)	(7.3)	(6.4)	(8.3)
Father 79.9		80.5	76.6	72.1	78.2	80.6	70.3	79.2
(7.8)		(7.1)	(11.3)	(13.3)	(8.5)	(11.6)	(9.7)	(8.7)

*n for parent-child communication = 11   (*SD*'s in brackets)

Agreement in Family Perceptions Among Family Members

Pearson product-moment correlations were computed among the child's, the mother's, and the father's scores on the three family scales (Table 2). The term "child" is used here to refer to both the grade 4 children and the grade 7 adolescents. As could be expected, mothers' and fathers' perceptions of the family were more closely related to each other than mother-child or father-child pairs. Correlations between mother-child pairs for family strengths and for parent-child communication are significant for the gifted, but not for the control group. On the other hand, a significant correlation between father-child pairs for family strengths was obtained for the control, but not for the gifted group. For the gifted families then, there appears to be greater congruence between mother-child pairs than for father-child pairs particularly in terms of parent-child communication.

Table 2
Intercorrelations between Pairs of Family Members

	Child/Mother		Child/Father		Mother/Father	
	Gifted	Control	Gifted	Control	Gifted	Control
$n =$	42	36	37	31	37	31
Fam. satisfaction	.23	.27	.07	.08	.59[c]	.47[b]
Family strengths	.32[a]	.21	.24	.34[a]	.70[c]	.38[a]
Parent-child com.	.48[c]	.24	.22	.24	.18	.43[b]

[a]$p < .05$; [b]$p < .01$; [c]$p < .001$

Relationship Between Family Variables and Child's Self-Perceptions Variables

Pearson product-moment correlations were computed between the family perception scores and the child's self-perception and motivational orientation scores (Table 3). Only correlation coefficients with $p < .10$ are listed. As could be expected, there are far more significant correlations between the child's ratings of family variables and child's ratings of self than between either parent's ratings of family variables and the child's ratings of self (30 versus 10 significant correlation coefficients respectively).

Table 3
Intercorrelations between Family Variables and Self-Perception and Motivation Scores

	Self-Perception						Intrinsic/Extrinsic Motivation				
	Scholastic	Social	Athletic	Appearance	Conduct	Self-worth	Challange	Curious	Mastery	Judgment	Critera
Family strengths											
Gifted Child n = (49)	.40ᵇ			.25ᵃ	.26ᵃ	.47ᶜ	.32ᵇ			-.22	
Mother (42)					.23		.26ᵃ				
Father (37)					.25						
Control Child (49)		.36ᵇ	.42ᶜ	.45ᶜ		.51ᶜ				-.35ᵇ	
Mother (36)					.22			22			
Father (31)											
Family Satisfaction											
Gifted Child (49)	.46c			.20	.22	.41ᵇ	.34ᵇ		.26ᵃ		.21
Mother (42)	.22			.23	.35ᵇ	.25*	.25*				
Father (37)	.26	-.24									
Control Child (49)	.21	.23*	.31ᵇ	.36ᵇ	.31ᵇ	.49ᶜ		.23*		-.35ᵇ	
Mother (36)									.31ᵃ		
Father (31)											
Parent-child communication											
Gifted Child-M (49)						.25ᵃ					.20
Child-F (47)	.20				.31ᵃ		.21		.20		.22
Mother (42)		.48ᶜ	.27ᵃ	.34ᵇ		.33ᵇ					
Father (37)	.24		-.29ᵃ		.26		.22				
Control Child-M (49)		.37ᵇ	.34ᵇ	.37ᵇ		.59ᶜ		.24ᵃ			
Child-F (48)		.21	.30ᵃ	.34ᵇ	.21	.42ᵇ				-.32ᵇ	
Mother (36)					.30ᵃ						
Father (31)	.25							.35ᵃ			

ᵃp < .05; ᵇp < .01; ᶜp < .001; *p < .06

Child's ratings. Both the gifted and control children's family perceptions are significantly and positively related to their perception of global self-worth. However, when the specific domains of self-perception are examined separately, the pattern of relationship becomes different for the gifted and the control children. For the gifted children, family strengths are significantly related to scholastic competence whereas for the control children, family strengths are not significantly related to scholastic competence, but to social acceptance and athletic competence, both non-cognitive aspects of self. A similar pattern is found with family satisfaction, significantly correlated with scholastic competence for the gifted, but not for the control group. For the control group, family satisfaction is significantly correlated with athletic competence, physical appearance, and behavioural conduct, the non-cognitive aspects of self.

Likewise in terms of motivational orientation, for the gifted children, family strengths and family satisfaction are significantly correlated with the child's preference for challenge, and family satisfaction also with independent mastery. Yet for the control children, family strengths and family satisfaction are both significantly and negatively correlated with independent judgement, suggesting that control children who perceive greater family strengths and pride, and satisfaction tend also to see themselves as relying more on teacher judgment.

As for parent-child communication, only one significant correlation was obtained for the gifted child's ratings, between the gifted child's ratings of mother-child communication and global self-worth, suggesting that gifted children generally do not perceive parent-child communication to be related to their own sense of competence or motivational orientation. On the other hand, for control children perceived parent-child communication is significantly related to all aspects of self-perception except scholastic competence and behavioural conduct. As with the other two family variables, independent judgement is significantly negatively related to father-child communication for the control children. This pattern suggests that insofar as control children are concerned, family strengths, satisfaction and father-child communication are associated with an extrinsic orientation in the child.

Parent's ratings. For mothers of gifted children, family strengths are significantly related to their gifted child's preference for challenge; family satisfaction is significantly related to behavioural conduct and near significantly related to global self worth and preference for challenge. The pattern of relationship regarding mother's ratings is similar to that found for the gifted child's ratings except for parent-child communication. Parent-child communication as perceived by mothers of gifted children, was significantly related to social acceptance, athletic competence, physical appearance, and global self-worth, all non-competitive aspects of self. In contrast, parent-child communication for mothers of control children was significantly related only to behavioural conduct. Only two significant correlations were found pertaining to the father's ratings of family variables and no clear pattern emerged.

Discussion

The group comparison results indicate that families of gifted students and families of non-gifted students do not differ as a whole in their perceptions of family strengths, family satisfaction and parent-child communication. A few differences were found pertaining to family members' perceptions separately, but not the family taken as a unit. Gifted children

report less satisfaction with their families than do control children. This is important given the findings from previous research showing family satisfaction to differentiate families with achieving versus underachieving gifted boys (Green et al., 1988). Gifted grade 7 girls as compared with control grade 7 girls perceive less family pride or strength and less open father-child communication. Mothers of gifted grade 4 boys also report fewer family strengths than mothers of control grade 4 boys. That all the group differences point to the same direction in favour of the control group suggests that being gifted might pose some difficulty in family relations. The findings pertaining to gifted grade 7 girls might also suggest the particular vulnerability of gifted early adolescent girls. However, given the small N of the subgroups, these results should be interpreted with caution.

The finding of grade or age differences, showing greater family pride for the younger children than for the early adolescents, and more open parent-child communication as perceived by fathers of the younger children rather than the adolescents is not surprising, given the nature of the parent-child relationship in early adolescence. In respect to gender differences, control grade 4 girls perceive less family pride than control grade 4 boys and grade 4 girls perceive less open father-child communication than grade 4 boys. Fathers of gifted girls report more satisfaction with their families than gifted boys. Can one speculate that intellectual giftedness in a daughter is a greater source of satisfaction to the father than intellectual giftedness in a son?

The finding of greater congruence between mother and gifted child's perceptions than between father and gifted child's perceptions is not surprising, suggesting a greater sensitivity in the mother-child relationship. What is important is the finding of significant relationships between mother's ratings of parent-child communication and the gifted child's self-perceptions in the non-cognitive domains where the intellectually gifted child may not necessarily excel. This finding is consistent with Cornell and Grossberg's (1987) study showing a mutually supportive and open family relationship as important to the gifted child's self-esteem, but it extends their study by specifying aspects of self-perception. The present data are also consistent with McGowan's (1986) finding showing family cohesion and expressiveness and conflict to be strong predictors of gifted adolescents' self-esteem level.

The results of the study also show that while perceptions of family pride and happiness are important to a child's overall concept of self-worth, these perceptions about the family are particularly important to the gifted child's scholastic self. In contrast, they are important to the non-cognitive aspects of self, such as social and athletic aspects, for the non-gifted child. This clearly points to scholastic competence as being the most salient dimension of self-perception for these children whose giftedness is in the intellectual domain. The data also affirm the importance of the use of a domain-specific approach to the measurement of self-concept.

The finding that family strengths and satisfaction are related to preference for challenge and independent mastery for the gifted and not for the control group, whereas these family variables are related to the control children's reliance on teacher or adult judgement clearly suggests a differing tendency in motivational orientation. Intrinsic orientation appears to be the salient dimension for the gifted as far as family pride and family cohesion are concerned. This finding is consistent with other research which shows that *scholastic achievers come from family environments that are cohesive, child centred and where parent-child identifi-*

cation is strong resulting in high achievement motivation (Olszewski, et al., 1987, p. 25). It would seem, therefore, that if we want to foster intrinsic preference for challenge and independent mastery in gifted youngsters, it would be important to promote a sense of family pride and family satisfaction.

In conclusion, this study has shown families of gifted and families of *normal* children to be similar in family strengths, family satisfaction and parent-child communication when considered as groups. However, there are certain differences, particularly in respect to the children's perception of their families. In addition, perceptions of the family have been shown to be important in the development of the gifted child's self-perceptions and motivational orientation.

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FAMILIES OF GIFTED UNDERACHIEVING BOYS, AS PORTRAYED BY THEIR PARENTS

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This study focused on the differential views of the fathers and mothers of gifted underachieving boys, aged 8-12 years. A 2X2 experimental design provided comparisons with parents of gifted achieving boys, as well as with 2 groups of parents of age-matched boys of average intelligence and academically considered to be either achievers or underachievers. The Family Assessment Measure (FAM) was used as a measure of personal and familial functioning. Results indicate that the fathers of gifted underachieving boys rated themselves and their families as experiencing problems in expressing affect, in exercising autonomy and in resolving conflicts related to cultural values and norms. Furthermore, the scores of these fathers were found to be consistently and significantly higher than the scores of fathers in all the remaining three groups. On the basis on these findings, and as one hypothesis, it is proposed that the gifted underachievers' view of themselves conforms to their fathers' view of their own role as parent, husband and contributing family member.

An extensive survey of children living in the province of Ontario, Canada, indicated family dysfunction to be the factor most strongly associated with emotional disorder in children (Offord, 1986). Such a relationship holds well for gifted children (Araoz, 1977;

Dencen-Gerber, 1973; Gelcer & Dick, 1986). When gifted and non-gifted children's families are compared, both in terms of the child's problems (Dowdall & Colangelo, 1982) and/or the family's problems (Anolik, 1979; Gelcer & Dick, 1986; Ziv, Rimon & Doni, 1977) no significant differences are found.

The findings are also similar for academic underachievement in children. For example, Reeves, Wirry, Elkind & Zametkin (1987) found that family problems are closely associated with a variety of underachievement problems in children. Campbell, Adams & Dobson (1984) advanced a similar argument about adolescents. As well, a close association was observed between emotional disorders in children and their academic underachievement (Bosma & Gerrits, 1985). Beitel & Gelcer (1986) found gifted children to perform only on par with their peers who were of average intelligence. They concluded that whereas children of average intelligence would do well to attain such levels, this rate of performance, when compared to the gifted children's intellectual capacities, represented underachievement. Terman and Oden (1947) found the most significant distinguishing characteristic of underachieving gifted boys to be their resistance to identification with their fathers.

It may be valuable then, to expand the measure of familial factors in gifted underachieving boys beyond previously used global measures, so as to include specific dimensions that may serve as mechanisms for some specific aspects of the child's poor school performance. If we assume, for example, that gifted children's intellectual and emotional sensitivities make them more vulnerable to certain familial pressures (Whitmore, 1980), it is imperative to examine each of these factors separately as well as their interactions. Research in this area has been sparse. There is virtually no research on the impact of the familial context within which giftedness blossoms or wilts. The bulk of research on families and parents of the gifted has been retrospective and limited by what documentation is available (Albert, 1978; Wolf, 1980).

Olwerus (1980) as well as Goldberg and Easterbrook (1984) were among the first researchers to attempt a linkage between parenting styles, or quality of marriage, and patterns in the child's development. Their findings showed a close association between quality of marriage and parenting, focusing on bonding between one of the parents and the child. The triangulation of children, on the other hand, or their function as mediators in the parents' dyadic relationship was studied by Bronfenbrenner and Crouter (1983). These researchers demonstrated that there is a change in role requirements that occur, in the parent-child relationship, when both spouses interact together with the child, as opposed to when each parent interacts separately with the child.

Parenting studies focus on the importance of a supportive marital relationship in facilitating each spouse's transition to his/her parental role (Grossman, Eichler & Winickoff, 1980; Russel, 1974). In addition, Brody and Stoneman (1981) found that, as reports of marital problems increased, fathers used less positive feedback and intruded more into task-related behaviour than did mothers. These fathers tended to do things for their children rather than with them. They also displayed little positive emotion toward their children. Gjerde (1986), on the other hand, found mothers of normal adolescents to be more affective than fathers, more humorous and more engaging. However, when both parents were equally available to their children, the presence of the father served to improve the mother-son relationship and to diminish the parental involvement (Gjerde, 1986). That is, whereas mothers were found

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to be most comfortable in triadic situations, fathers were considered at their best in dyadic contexts.

What happens to these family relations when the child is intellectually gifted? Anolik (1979), Dowdall and Colangelo (1982), Gelcer and Dick (1986), Wendorf and Frey (1985), and Ziv, Rimon and Doni (1977), compared gifted children to children of average intelligence and found more similarities than dissimilarities between the two groups on familial and other psychological characteristics. There were, however, two observations of potential significance to note.

First, despite the fact that none of these researchers found statistically significant differences between families of gifted and non-gifted children on the dependent measures, there was widespread agreement that there were specific, definable and distinguishable, interactional patterns in the family dynamics of the gifted (Albert, 1978; Anolik, 1979; Araoz, 1977; Cornell, 1983; Fine, 1977; Fine & Pitts, 1980; Gelcer & Dick, 1986; Thiel & Thiel, 1977). Peterson (1977), for example, argued about the existence of what he called *heterogeneously* gifted families, wherein each person is intellectually gifted in his or her own way. Others examined the relevance of family size and birth order in families of gifted children (Hayes & Bronzaft, 1979; Pulvino & Lupton, 1978), while some studies highlighted the uniqueness in relationships established between gifted children and each of their family members, including grandparents (Albert, 1978; Araoz, 1977; Ballering & Koch, 1984). Early parental loss was also delineated by Albert (1978), as prevalent among exceptionally gifted, creative and famous adults. Besdine (1971) elaborated further on this factor, stating that the absence or death of one parent is generally accompanied by the development of an intense and exclusively symbiotic relationship between the surviving parent and the child. This type of relationship he labelled *Jocasta Mothering*, to include also fathers who behave in this manner with their male or female genius child. In line with Besdine's argument, but taking a less extreme position, Groth (1971) found warmth from the opposite sex parent to play an important role in inspiring achievement among gifted males, whereas Thiel and Thiel (1977) connected the gifted child's weak self-concept with cognitive and affective divergences in the father-son relationship.

Second, most of these studies focus either on a single, salient, familial trait or a combination of some global impressions about the family. Some attempts to tackle the study of personality traits in the gifted child's parents, however, also seem to delineate some unique patterns. Fell, Dahlstrom, and Winter (1984), for example, found fathers of gifted children to be more intelligent, independent, aloof, assertive, and more tense than the general population of males, whereas mothers of gifted children tended to be more persistent, calculating and conscientious than the general population of mothers. These observations are consistent with our observations (Gelcer & Dick, 1986) and with Groth's (1971) who found mothers of gifted children displaying impressive achievements in formal education and in their careers. It is important to note, however, that in contrast to these findings, Jordan (1976) found no consistent sets of predictors, including maternal traits, that are considered influential in the attainment of an exceptional status at six years of age.

Based on the general directions outlined in the literature so far, and in an attempt to zero-in on specific family dimensions in gifted underachievers, this study focused on the parental reports of families with gifted boys. More specifically, the differences between mothers and

fathers were examined, in terms of their assessment of their family's functioning on specific familial measures and of themselves as parents. Our hypotheses were: (a) fathers of gifted underachieving boys report more problems in their families than the mothers; (b) when rating their own performance in their families, these fathers also delineate more problems than mothers, which are intrinsic to their roles as husbands and fathers; and (c) in the domain of family life, then, fathers of gifted academically underachieving boys may be interpreted to be underachievers themselves.

Method

Subjects

The subjects were 98 parents of boys, aged 8-12 years, from the same socioeconomic background. Single parents were excluded from this study, as the focus was on essentially intact families.

Thus, forty-nine couples were grouped into a 2X2 experimental design according to two dimensions relating to their son: intelligence and achievement. The four groups were: gifted achievers (GA) N=18 couples; gifted underachievers (GU) N=11 couples; average achievers (AA) N=12 couples; average underachievers (AU) N=8 couples.

The IQ mean and range respectively for the boys in each of these groups were as follows: GA 137, 133-142; GU 130, 125-141; AA 104, 101-116; AU 94, 84-114.

Children were placed in the underachievers' group when they were identified either by teachers or parents, or both, as having academic difficulties in one or more areas. Although the teachers generally described a variety of academic difficulties for each child, all parents were asked to respond to the same questions about their sons' academic performance and its history. Parents of the two underachievers' groups (GU and AU) reported significantly more problems at school than their achieving counterparts (Chi square = 18.51; d.f. = 3; p<.001). Due to the variability in details of teachers' reports, these were not analysed, but their judgement about academic underachievement was in 100% agreement with that of the parents.

The achievers' groups were formed by soliciting an equal number boys from the same schools or classrooms as the underachievers. They were identified by their teachers as achieving, but *not necessarily at the top of the class*. Both achieving and underachieving boys received $20 for their parents' and their own participation in the study.

A Kruskal Wallis analysis of variance on the socioeconomic level of the parents, as reported by the fathers, yielded no significant differences between the four groups on the following variables: level of income (p=.10); educational backgrounds of both parents (p = .06); and differences in family size (p = 10). Both parents, in each of the total 49 families, completed the Family Assessment Measure (FAM).

Family Assessment Measure

The FAM is a self-report questionnaire (Skinner, Steinhauer & Santa-Barbara (1984) in which each parent independently rates his/her family along seven dimensions of functioning: 1. Task accomplishment (TA) is a rating of accomplishments on essential tasks necessary for fulfilling the family's biological, psychological and social goals; 2. Role performance (RP) a rating of the integration and adaptability of individual members' roles; 3. Communication

(Com) assessing the effectiveness of communication between family members; 4. Affective expression (AE) a report on the quality of the family's information exchange in the areas of instrumental, affective and neutral communication; 5. Affective involvement (Inv) the degree and quality of family members' interest in and concern for one another; 6. Control (Con) an evaluation of the process by which family members influence each other; 7. Values and Norms (VN) a measure of family integration and adaptation to the influences of culture and subgroups to which the family belongs. In addition, the FAM provides an assessment of the subject's response style as it relates to Social Desirability (SD) and Defensiveness (D).

The FAM is constituted of three major scales, each reflecting a different perspective upon the seven dimensions mentioned above. These are:

1) The FAM General scale, where a general assessment of the family is obtained from each person reporting about the family as a unit.

2) The FAM Dyadic scale, which brings into focus dyadic relationships in terms of each dimension.

3) The FAM Self-rating scale, which provides an assessment of each individual's functioning in the family.

The FAM takes about 30-45 minutes to administer and is hand/or computer scorable. Skinner et al. (1983) reported substantial internal consistency reliability estimates with the coefficient alpha for the FAM General as .93; for the Dyadic Scale .95; and the Self-rating scale .89. They also found the FAM to significantly differentiate between clinical and non-clinical families.

In this study, the FAM was selected due to its multi-dimensions and its capacity to reflect the personal as well as the familial profile. Thus, fathers were compared to mothers on the FAM General and on the FAM Self-rating scales across the four study groups.

Results

A 2X2X2 analysis of variance for: Gifted vs. Average, Achiever vs. Underachiever and Mother vs. Father was carried out on each of the individual subscales of the FAM General and the FAM Self-rating scales. The following significant results were found for scores on the FAM General subscales:

In *Role Performance* (RP) there were significant main effects on Underachievement vs. Achievement, F (1,45)=7.07, p <.01, with underachieving groups scoring higher than the achieving. These scores indicate weakness in the GU and AU groups relating to role integration, conflicts about role definitions or difficulties in adapting to new roles.

In *Affective Expression* (AE), there was a significant main effect for Mothers vs. Fathers, F (1,45)=4.55, p<.04, with fathers in all groups scoring higher than mothers. This difference was particularly large in the GU group, showing emotional inhibitions or inadequate expression of affect in these families.

In *Social Desirability* (SD) results can be summarized as follows: the interaction of Gifted x Parent showed a significant difference, F (1,45)=4.63,p<.04. The mothers in the Gifted groups (GU and GA), scored higher than fathers; whereas, in the Average groups, fathers scored higher than mothers. High scores on this scale generally correlate with conformity to social standards.

The following FAM Self-rating Scales emerged as significant:

In *Task Accomplishment* (TA) results were significant for the interaction of Achievement x Parent, F (1,43)=5.01, p<.03, with fathers scoring higher than mothers in the Underachievement groups and fathers scoring lower, or nearly equal to mothers, in the Achievement groups. Thus, both the GU and AU fathers rated themselves as having failed on some basic tasks in the family, either through their inability to respond appropriately to changes in the family life cycle, or by demonstrating problems in task identification and implementation of change.

For *Communication* (Com), a significant interaction effect emerged for Gifted x Achievement scores, with the AU scoring higher than the AA, and the GA scoring higher than the GU, F (1,43)=5.06, p<.03. High scores on this scale refer to confused or insufficient communications in the family.

In Affective Involvement (Inv), significant main effects were found with the underachieving groups scoring higher than the achieving, F (1,43)=5.77, p<.02. Although not significant, it is notable that a trend emerged on the three way interaction of Gifted x Achievement x Parent scores, F(1,43)=3.54, p<.06, in which GU fathers scored higher than GU mothers, whereas AU fathers scored lower than AU mothers and Achievers' mothers and fathers were about equal. High scores here are generally expected to exhibit either lack of involvement with family members, narcissistic type of interest in involvement or an extreme, symbiotic mode of relating to family members. Such scorers may exhibit insecurity and lack of autonomy in the family.

In *Values & Norms* (VN), results showed a significant interaction effect for Underachievement x Parent, F(1,43)=4.84, p<.03, where fathers scored higher than mothers in both underachieving groups and were equal to mothers in the achieving groups. High scores of the fathers in the AU and GU groups reflected dissonance between components of the family's value system, or between these and outside cultural norms. Alternately, what these fathers may have tapped through their significantly higher scores were those family forces that function to subvert explicitly stated roles via some hidden agendas.

Discussion

These results must be interpreted with caution, given the lack of consistency in significance across scales. It is possible that at least some of the analyses attained significance by chance, since so many comparisons were drawn. Nevertheless, they do afford us a more detailed view of the parents of gifted boys then had been accomplished before. Earlier research (Anolik, 1979; Gelcer & Dick, 1986; Ziv, Rimon & Doni, 1977) showed no significant differences between families of gifted and non-gifted children, although some writers have advanced arguments about certain unique characteristics in family relations of the gifted that may function to distinguish them from families of the non-gifted (Albert, 1978; Ballering & Koch, 1984).

The utilization of the FAM in this study and the analyses of its data helped us make a preliminary step towards gaining additional insights about these families. What have we learned here that we did not know before?

In a previous study in which only the FAM General was applied (Gelcer & Dick, 1986), problems in Role Performance, Involvement and Values & Norms, all significantly distinguished between families of gifted children seen in a clinical setting and families of non-gifted children. As with the clinical factor then, the factor of underachievement in the present study also emerged as a significant discriminator. However, the different and specific focus on underachievement in this study, together with the addition of the third factor — Parents — yielded the following details and variations in results.

As in the past, parents of underachievers, both gifted and not gifted, reported more problems around family roles than did the parents of achievers. Conflicts between parents, however, emerged here as statistically significant for the first time. These conflicts were clearly evident in the disagreements between fathers and mothers on whether and how people express emotions in their families. The significant discrepancy in scores between mothers and fathers on the Affective Expression scale was highest in the gifted underachieving group, showing the fathers as reporting more inhibitions or inadequate expressions of affect in their families than did mothers.

This finding was in marked contrast to another new observation in this study, namely, a conflict about Social desirability (SD). Mothers in both gifted groups (GU & GA) demonstrated a significantly different style of responding to the FAM General from that of the fathers. Whereas the latter did not seem concerned with appeasing external standards and expectations, the mothers of gifted boys were more significantly concerned with their families' portraits emerging in a more positive light than they may indeed be. The reverse was found between the Average groups, where fathers scored significantly higher than mothers in SD. These findings were interesting in view of Skinner'ss (1987) results showing non-problem families to be somewhat higher in SD and Defensiveness. Our own past findings, however, did not distinguish between problem and non-problem families on these scales, since the means of all four groups on Social Desirability and Defensiveness were elevated relative to the rest of the scales (Gelcer & Dick, 1986).

The variability in the results on this subscale warrants further discussion despite the fact that they relate more to the subjects' style of responses rather than to the contents. Observations of structured interviews with these families (not reported here), together with clinical data about them, seem to consistently depict the mothers of these gifted boys as the go-getters and/or the go-between parents. In the cases of GA, these mothers generally play the role of peace-maker, mediator, or facilitator, whereas in the GU group mothers are placating, sometimes assuming the role of the martyr in the family, needing their son's protection, or alternatively the saviours for their boys. The fathers' activities in these families are either not as clearly pronounced nor as positively connoted. Among the Average groups, however, fathers seem to take on most actively the family's leadership and the responsibilities for its well-being. Hence they may be more concerned with portraying socially desirable profiles for their families.

It may indeed be that mothers of gifted children are more persistent and calculating than the general population of mothers as reported by Fell et al., (1984). However, when reviewing the GU group's results both on AE and SD, the question arose as to whether the GU mothers were attempting to play down marital conflicts relating to problems in the expression and transmission of affect in their families, or whether the fathers were exaggerating these

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problems. The answer to the latter question is negative, given that the fathers' scores did not exceed the normal expectations, whereas the mothers' did. This phenomenon, however, was more in line with our clinical observations of GU mothers behaviours, who, when facing marital struggles, tend to demonstrate more (often inappropriate) affect towards their gifted sons than their husbands.

The second major level of findings not described elsewhere, relates to the FAM Self-rating scales. Here we found confirmation to our hypothesis that fathers of GU boys may be seen as underachievers in their families. Results on Task Accomplishment, in fact, demonstrated that, unlike the GA and AA groups, fathers in the GU and AU groups described themselves as failures when reporting their accomplishments on family-related tasks. This view again significantly differed from that of the mothers in both the underachieving groups, whereas in the achieving groups the parents did not differ much.

In terms of the gifted underachievers one wonders whether these personal problems reported by the fathers in TA, are related to the FAM General's findings of family problems in RP and AE. That is, what are the relationships between seeing oneself as underachieving on family tasks and poor role performance coupled with marital conflicts around the expression of affect? The following data seem to reflect more on the GU fathers and may provide further illuminations to our questions.

Whereas in the achievers' groups mothers' and fathers' scores did not diverge much on Affective Involvement (Inv.) they did so significantly in the underachievers' groups, with the GU showing a trend for fathers to be higher scorers than mothers on this scale. The reverse was true for the AU parents. It may then be relatively safe to say, based on these findings, that fathers in the gifted underachievers group felt more insecure and less autonomous in their families than did the mothers. This finding is in marked contrast to Fell et al.'s (1984) description of fathers of gifted children to be more independent, assertive and aloof than the general population. It is very likely that grouping fathers of gifted boys as well as girls and excluding the underachievement factor, one could obtain such a picture, but it does not seem to apply to the fathers in the GU group in this sample.

Further clarifications to our questions above, may be evident in the scores obtained by these fathers indicating that they may not feel emotionally connected with other family members in a manner that is expected of their role as fathers and husbands. This statement becomes clearer as we realize that role-diffusion in these families often finds the father somewhat infantalized and the gifted boy adultmorphized, both in relation to the mother. These males defy generational boundaries in their attempts to capture the mother's attention and affection. In addition, taking the marital conflict into account, and given that Brody & Stoneman (1981) already found that with increases is marital problems fathers generally decrease positive feedback to their sons and increase in task intrusions, we may have evidence here for diffusion of individual boundaries that may also seriously affect achievement in the lives of father and son.

The data further elaborate the picture in the fathers' Self-rating scale on Values and Norms (VN). Here too the underachievers' fathers scored higher than mothers and these scores were significantly different from those of the achievers' groups. Again, the fathers who reported more underachievement on family tasks and poorer affective involvement than their wives (GU & AU), also reported on their perceptions of greater value-clashes between components

of the nuclear or extended family systems, or between the family and cultural norms.

Why are GU and AU wives so significantly low on these scales? Is it their general trend to appear more as conformists (SD), or are they indeed accomplishing much better than their husbands (TA) in the family? If the latter were true, how then would one explain the mothers' effects on their sons' academic underachievement?

The answer may indeed be related to the fact that the gifted underachievers in this study were boys and not girls. Our FAM records accumulated so far on underachieving girls (although few and far between) portray nearly an opposite picture of the above. Mothers report many more problems than fathers, but fathers still do not score highly on Social Desirability. Similarly, Skinner (1987, p. 23) reported that in families of patients with anorexia nervosa, mothers and daughters showed *significantly increased difficulties in TA, RP, Com. and AE in their families, in comparison with controls.*

In the familial context of gifted underachieving boys, on the other hand, fathers appear to be more sensitized to problems that may hamper their sons' progress than do mothers. What seems to render these fathers relatively impotent to implementations of solutions in these instances, however, is exactly this heightened sensitivity to values and norms, which is frequently coupled with a strong motivation (overly so sometimes) to challenge and to conquer the problem head-on. It is as if these fathers vow never to let their sons be subjected to the same amount or type of suffering that they had undergone in their childhood. Their manner of tackling these problems, however, as evidenced by the high TA scores, only serves to add fuel to the fire. Their sons, on the other hand, look up their fathers as role models and thus seem to come by their academic underachievement honestly. So the vicious cycle may be perpetuated and one does wonder about how much of a chance the mother has to intervene adaptively.

Finally, it may be of interest to note that in the GU group parents did not report problems of Communication in their families. This was significantly in contrast to the GA group who did. The latter results may be in line with previous reports that described the gifted achievers' families as bustling with activities, perhaps to the exclusion of what may be considered by them as allowing for adequate or sufficient family communication.

To summarize, fathers of gifted underachieving boys appear as a somewhat unique group only on the FAM General Affective Expression Scale and the Self-rating Affective Involvement Scale. Otherwise, findings relating to the GU fathers merged together with the fathers of the Average underachievers. In both of these groups the fathers also demonstrated significant weaknesses, in the FAM Self-rating Task Accomplishment and Values & Norms scales.

On the other hand, when examining the results of parents in the gifted achievers group there were no such consistencies as with the gifted underachievers' fathers' scores. Nor were the mothers' and fathers' family or self profiles as consistently divergent. Finally, given that Achievement most often emerged as the significant distinguishing factor, the GA parents' scores were generally also grouped together with the AA scores.

This research attempted to expand the domain of underachievement outside of school boundaries to include the gifted child's home too. As a preliminary investigation, however, its span had to be restricted. It is hoped that prior to making any generalizations from these findings, additional research will take place, replicating and hopefully also exploring new venues in our understanding of underachievement in the gifted.

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THE GENTLE GENIUS OF GEORGIA: E. PAUL TORRANCE

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An interview was conducted with E. Paul Torrance in June of 1989 at his home in Athens, Georgia, U.S.A. Early influences, significant contributions and personal attributes of E. Paul Torrance are discussed. Among the major influences were a mentor relationship with significant individuals (encouraging teachers, university professor and relatives); and a love of literature, history and languages. His wife, Pansy, was a major influence in Paul's life. The contributions made, to date, by E. Paul Torrance are numerous: re-examination of the concept of intelligence in light of his research on creativity; the Torrance Tests of Creative Thinking; Future Problem Solving Program; longitudinal study of the creatively gifted; and the incubation model for teaching. He has received many awards and honours for his seminal work in the area of creativity. His life is a statement of the power of internalized creativity.

On June 13, 1989, after 15 hours of travel from Edmonton, Alberta, Canada, I arrived at 183 Cherokee Avenue in Athens, Georgia. Dr. Torrance rushed out of his house to greet me; he pumped my hand, grabbed my suitcase and golf bag and went up the steps of his home. He quickly showed me to my room and made a lunch for me.

Such was the beginning of my research fellowship at the Torrance Center, University of Georgia. At last I had an opportunity to work and stay with my *academic hero*, E. Paul Torrance, the recognized founding father of modern creativity research. I was overcome by his generosity, caring and selfless manner.

During my fellowship, I had the opportunity to interview Dr. Torrance and interact with him on a daily basis. This article explores the early influences on Dr. Torrance; his significant contributions to the field of creativity and education; and ends with a commentary on this exceptional man.

Early Influences

During the interview, Dr. Torrance spoke easily and fondly of his teachers and significant others who were major *signposts* along his academic way. Scholarship appeared early in his schooling. His interest in books and languages was cultivated by certain teachers and professors. An interest in writing and careful documentation was fostered by teachers who held high expectations for students. Paul Torrance's academic merit was acknowledged early in his educational career. To follow are the major influences in Paul Torrance's early life.

Dr. Torrance's teachers in grades three and four encouraged imaginative writing. They also did a lot of reading aloud. In grade four, young Paul had an appendectomy and had to rest for six months at home on the farm near Milledgeville, Georgia. During this time he did a great deal of writing and used pictures to illustrate his stories. Paul became an avid reader. His father's sisters had a great variety of books - mainly college textbooks, such as chemistry and biology. He read them all. Teachers in grades 6,7,8 and 9 encouraged Paul to write and he entered several contests and won prizes for scholarship. Paul's grade 7 teacher presented him with a book at the end of the year for academic merit. Ironically, the book was entitled: *Success - Ideals of Great Men* (1927). At age 13, he won an award of 10 dollars for an essay on *Baldwin County Products* and a medal for citizenship and scholarship from the Sons of the American Revolution. Paul was the first honour graduate from his elementary school. He won a trip to Camp Wilkins, a state 4-H camp. There he met a retired man who became his first mentor.

At high school, Paul learned the skills of writing from a literature teacher who held high expectations for his students. It was during this period of schooling that Paul learned the mechanics of writing, proofreading and careful documentation, skills which he has put to excellent use as a researcher and writer of international fame. English, history and French were favourite subjects. His teachers displayed an interest in him and encouraged him to succeed.

At college, Paul loved French literature and learned to read French almost as well as English. While in his last year at Mercer University and needing only one course to graduate, he petitioned the professors for a course in French literature, took the course and passed it

easily. His knowledge of the French language prepared him for the study of survival skills while in the U.S. Army. The most current research in survival training, at the time, was done by the French Navy. He read all the studies in French and further interviewed eminent French researchers of the day. While at Kansas State College, Paul studied German and read Rorschach and Zondi's work. Today, Dr. Torrance still reads French and German so that he can keep up with creativity research in those countries.

Besides a number of great teachers that encouraged Paul and acknowledged his exceptional scholarship, others at college and university recognized his great potential and contributed to his growth. Jacob Moreno at the Psychodramatic Institute encouraged Paul in 1947 to use psychodrama as a method in solving problems. Paul also studied at the University of Oklahoma as an exchange clinician under Dr. William Lemon.

Paul's parents, Ellis and Jimmie Pearl Torrance, were farmers who lived near Milledgeville, Georgia. They tolerated his work but never understood what he was doing. He could talk more easily with his mother about his work. She had only grade 8 education and regretted not being able to keep up with Paul and his sister. Paul's mother often said to him, *I hope you're happy with your books*. Dr. Torrance indicated that, *I don't think she read them*. Mrs. Torrance was very creative in household chores: young Paul inherited his creative potential from her.

A major influence in Dr. Torrance's life was Pansy Nigh whom he married in 1959. Pansy was a student of Dr. Torrance at the University of Minnesota. Occasionally, she would give Dr. Torrance a ride in her car to the university, as he never learned to drive. Pansy was her husband's professional colleague, his best friend and his sweetheart. Pansy Torrance died in November of 1988. In June of 1989, the International Future Problem Solving Conference in Ann Arbor, Michigan, celebrated 15 years of Future Problem Solving and paid a tribute to both Paul and Pansy Torrance.

Significant Contributions

The contributions made by E. Paul Torrance are too numerous to elaborate in this article, so I will focus only on the most significant: a re-examination of intelligence in the light of research into creativity; the Torrance Tests of Creative Thinking; the Future Problem Solving Program; integration of aspects of creativity into curricular materials; longitudinal study of the creatively gifted; and a living memorial established as the Torrance Center for Creative Studies at the University of Georgia. He has received many awards and honours in recognition of his contributions.

Torrance has made us re-examine the concept of intelligence. The assessment of creative potential is an important aspect of intellectual ability. Torrance's measures of fluency, flexibility, elaboration and originality are the basic rational aspects of creativity. Other aspects of creativity identified by Torrance as suprarational factors or creative strengths include the following: highlighting the essence, keeping open, awareness of emotions, putting ideas in context, combining and synthesizing, visualizing richly and colourfully, fantasy, richness of imagery, unusual visual perspective, internal visual perspective, extending the boundaries, humour and glimpsing infinity. Torrance's book *The Search for Satori and Creativity* (1979) elaborates these various aspects of creativity. Based on more than 40

years of research, he has caused educators and psychologists around the world to seriously consider the assessment of creative potential as an important aspect of intellectual ability.

He is best known for his development of the Torrance Tests of Creative Thinking (TTCT) published in 1966. The TTCT have been administered to more children and adults in the world than any other test measuring creative potential. It has been translated into 35 languages. Over 2,000 studies using it have been reported. No other test of creativity can equal this record.

Among his other contributions to the field of creativity research are the publication of over 30 books, with 8 new ones in progress; over 1,500 journal articles; several other tests of creativity (e.g., Thinking Creatively with Sounds and Words, Thinking Creatively with Action and Movement) and tests of hemisphericity.

In 1974, he also co-founded the Future Problem Solving Program with his wife J. Pansy Torrance. It is an international program involving over 175,000 students in all 50 states and 16 foreign countries. The Future Problem Solving Program celebrated its 15th year in June of 1989 in Ann Arbor, Michigan. Dr. Torrance, unable to be there in person, sent his comments via video-tape. The Future Problem Solving Program has had the greatest impact on education and issues in the communities. A valuable resource handbook was written by the Torrances and Anne Crabbe in 1983.

Another contribution made by Dr. Torrance's work in creativity has been to integrate aspects of creativity with curricular materials. Dr. Torrance has integrated creativity with subject matter through the incubation model of instruction. Ginn and Company invited Dr. Torrance to consult with the writers and graphic artists in the development of a creativity strand in the Ginn Reading 360 and 720 Reading Programs. Torrance's incubation model of instruction was used in the student activities section of the reading series, as well as in the presentation of the stories and poems. The incubation model (Torrance and Safter, 1990) of instruction provides for an introductory phase which arouses anticipation and expectation, a second phase which deepens involvement and commitment and goes beyond the superficial, and a third phase which keeps the thought processes going and results in increased chances for successful incubation and creative action.

Dr. Torrance indicated that the skills of creativity need to be taught and practiced as part of the curriculum and not taught in isolation from subject content.

Dr. Torrance is conducting the only longitudinal study in the world on the creatively gifted. It is comparable to Lewis Terman's comprehensive study on gifted children that continues today (Terman and Oden, 1947; Sears, 1979). The longitudinal study (Torrance, 1972), initiated in 1959 with creatively gifted high school students, shows good predictive validity, i.e., the TTCT predicts creative achievements later in life. The predictive validity was higher for males (0.59) than females (0.46). The 30 year longitudinal study is still in progress and is being followed up by Dr. Torrance and his doctoral students. *The Manifesto for Children* (1983) was developed as a result of the experiences of the participants in the longitudinal study. Some of the findings of the longitudinal study are reported in the proclamation for children.

Because of his outstanding contributions, the College of Education at the University of Georgia has established a living memorial to continue his work in gifted, creative and future

behaviour. It is called the Torrance Center for Creative Studies. The major goals of the Torrance Center are to:

- preserve, protect and make available the papers of Dr. E. Paul Torrance for present and future researchers;

- provide for the continuation of research begun by or stimulated by Dr. E. Paul Torrance;

- stimulate new research in the areas of creative education, gifted education and future studies;

- generate support for scholars interested in creativity, gifted and future studies through fellowship and sponsored research;

- coordinate related activities concerned with gifted, creative and future studies.

An excellent booklet that provides a chronology of the events in the career of E. Paul Torrance is a festschrift entitled *Research Insights Over the Years: A Commemorative Collection* (1985).

In 1978-79, Dr. Torrance was awarded a grant and invited to Japan by the Japanese Society for the Promotion of Science to encourage international cooperation in scientific research, and to foster creativity and its application in-and-out of the classroom. While visiting Japan with his wife Pansy, Dr. Torrance wrote the essence of his popular *The Search for Satori and Creativity* (1979). Many of his books have been translated into Japanese and his tests are used widely in Japan. Dr. Torrance was invited to comment on the Japanese education system. He was impressed by a number of its features. The curriculum for preschool children is based on the arts - music, drawing, visual arts, drama and dance. Students get good training in cooperation and in solving real-life issues and problems. Brainstorming and quality circles are skills learned and practiced early in life. Dr. Torrance felt that the competitiveness and pressure aspect of Japanese education have been overemphasized.

Dr. Torrance was invited by the National Aeronautics and Space Administration (NASA) to include a piece of his work on creativity on the January, 1986 Challenger flight which included the first *Teacher in Space*, Christa McCauliffe, and, as we all know, ended in disaster minutes after lift-off. The Commander of the Challenger spacecraft, Dick Scobee and his wife June were knowledgeable about and extremely interested in Dr. Torrance's work. Dr. Torrance chose a basic battery of the TTCT to be placed on board the Challenger. He felt the test would communicate the essence of creativity to the world and would affect the future of education. Miraculously, the tests were recovered, undamaged, and were placed in the archives at the University of Georgia.

Exemplary honours attesting to his recognition and contribution as an outstanding researcher, teacher and author are the following: the Research Awards Committee of the American Personnel and Guidance Association selected his book, *Guiding Creative Talent*, to receive its 1963 original research award; two of his books were selected by Education Book List to receive its award as the outstanding education book of the year - *Education and the Creative Potential* in 1963-64 and *Creative Learning and Teaching* in 1970-71; the Psi Chi National Honour Society presented him an award for outstanding contribution to psychology in 1972; the Education Press Association of America presented him with the distinguished Achievement Award for Excellence in Educational Journalism: Feature Story in 1975; the Japan Society for the Promotion of Science awarded him a grant and invited him to Japan

(1978-79), to encourage international cooperation in scientific research; and the World Olympics of the Mind presented him the Arthur Lipper Award for outstanding contribution to human creativity in 1982. In addition, two festschrifts were presented to Dr. Torrance by Scholars of Creativity in Japan and by the College of Education, University of Georgia.

The Man - E. Paul Torrance

Despite the honours feted upon Dr. Torrance, he remains a caring, warm, approachable, accessible mentor to those who wish to learn. His daily routine of rising at 5:30 a.m., working throughout the day (opening mail from all over the world, writing, studying with occasional visits from researchers and friends) and retiring at 10:30 p.m., attests to his perseverance and passion to pursue creativity and its various applications. In spite of his busy schedule, he always had time to discuss my research interests and to find a relevant book or article.

Excerpts from letters and papers in the Torrance Archives at the University of Georgia reveal how leaders in the field of creativity and gifted education feel toward Dr. Torrance.

> The truly great are never too big or too busy to help those who want to learn.
> No one else has made a more thorough and genuine contribution to gifted
> education than Dr. E. Paul Torrance.

.. quiet humility

.. model of continued hard work and persistence

.. more willing to see issues from multiple perspectives

.. gentle

.. scholarly productivity

.. advisor, friend, mentor

Gentle Genius

   Sage

   Planting Seeds

   Few weeks incubation

   A lifetime to blossom

      Torrance

> His life is an excellent model of the power of internalized creativity.
> His prodigious contributions could only be overshadowed by the
> magnanimity of his heart as reflected by his unending zeal and generosity
> in sharing himself to everyone who comes his way and anyone he could
> reach. Perhaps his greatness could be best measured by the disciples he has
> created through the years who are influencing millions of people all over the
> world. He has disseminated the germ of CREATIVITY through his words
> and through his person WIDE and FAR and DEEP and LASTING. It is a
> privilege to have been his student.

Though he has received many honours for his scholarly work, Dr. Torrance has always remained accessible and helpful to those who request his assistance and guidance.

Finally, as I was leaving to return to Edmonton, Dr. Torrance stuck two cameras, for my boys, and a special package of Georgia pecans and peanuts for my wife, into my suitcase. As we said farewell outside his home, Dr. Torrance walked over to his favourite rose bushes and became absorbed in their care - a warm, selfless, scholarly genius of great sensitivity. Through his powerful ideas and gentle demeanour, he has made the world a better place.

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Research insights over the years: A commemorative collection - Retirement celebration for Dr. E. Paul Torrance, March 23, 1985. Athens, GA: College of Education, The University of Georgia.

Dr. Garnet Millar was a visiting scholar at the Torrance Center for Creative Studies, University of Georgia, in 1985 and was awarded a fellowship to conduct research on student questioning skills at the Center in 1989. Presently, he is Coordinator of Special Educational Services with Alberta Education.

UNDERACHIEVEMENT AND RELATED ISSUES FOR CULTURALLY DIFFERENT GIFTED CHILDREN [1]

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The paper examines issues related to underachievement in culturally different children. For a specific cultural group, the Canadian Inuit (Eskimo) people, the inappropriateness and inadequacy of the frequently-used intelligence-achievement discrepancy for identifying underachievement are demonstrated. Approaches for assessing underachievement and giftedness are culturally different children, without reliance on standardized and inappropriately-normed tests, are considered. The ultimate goal is identification of culturally different underachieving gifted children, reduction or elimination of underachievement, and development of their full potential.

Whitmore (1986) has challenged researchers and educators to extend their interest in gifted education to include underachieving and underserved populations, and to develop a substantive knowledge base within the next five to ten years. As Gallagher (1985) has indicated, serious world problems in need of solution require the application of the abilities of all of humankind, and, therefore, greater attention to developing the special abilities of minority groups. Thus it is timely to examine the extent to which current definitions of underachievement, and assessment models for identifying underachievement, apply to underachieving and underserved populations.

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Acknowledging that most of the gifted population is underserved, Whitmore (1986) has identified specifically underserved populations as being *those which suffer group neglect in terms of the provision of conditions and opportunities to nurture, stimulate, and guide to full development of the individuals' abilities* (p. 145). Thus, for Whitmore, the key factor is *lack of access to appropriate programming* (p. 145), resulting in a high incidence of underachievement. Among the groups which Whitmore has identified as underserved are preschool populations, economically disadvantaged and geographically isolated students, and cultural groups which have been labelled as non-intellectual.

Whitmore (1986) has defined underachievement as *a pattern of performance that is significantly discrepant from the individual's assessed level of ability* (p. 146). She has identified five distinct categories of gifted underachievers, including those who lack general achievement motivation, those with academic skill deficits, those lacking environmental nurturance, those with developmental delays, and those with specific disabilities. It can readily be seen that economically and/or geographically disadvantaged, culturally different subpopulations may, in fact, contain underachieving gifted members who fall within any, or several of Whitmore's five categories. Speaking specifically of children from new immigrant families, Harris (1989) has drawn attention to a number of factors that may well affect efforts of educators to recognize and provide for giftedness, not only of new immigrant children, but of all culturally different children. These factors include *Linguistic and cultural complications, economic and attitudinal factors, socio-cultural peer-group expectations, cross-cultural stress, and intergenerational conflict* (p. 1). Tapping the potential of these culturally different groups will benefit the total society as well as the individuals involved.

Typically, gifted underachievement has been identified by a discrepancy between intelligence and achievement test scores. For example, McClelland (1989) used achievement/IQ discrepancy scores, having measured achievement and IQ by standardized tests, to identify gifted achievers and gifted underachievers. Both groups had IQ scores in the gifted range, but the gifted achievers scored at least one and one-half standard deviations above the mean discrepancy score, whereas the gifted underachievers scored at least one and one-half standard deviations below the same mean score. This type of definition typically focuses on those children who have performed above an IQ level of about 130, on a standardized IQ test which has likely been normed for the majority culture. Thus, culturally different children may be missed, even in preliminary screening for giftedness, in that they may perform poorly on the standardized IQ tests. At the same time, they may well be identified as low-achieving because of similar, inherent biases in favour of the majority culture, built into the content and norms of standardized achievement tests. To illustrate, Wilgosh, Mulcahy, and Watters (1986) reviewed available evidence which suggests significant standardized test bias against American and Canadian ethnic and racial minority groups.

Wilgosh et al. (1986) examined data from a project which involved re-norming the WISC-R, as well as the Goodenough-Harris Drawing Test and the Bender Visual Motor Gestalt Test, for Canadian Inuit (Eskimo) children from the eastern part of the Canadian Northwest Territories. The Inuit norming project had addressed an immediate concern with bias in the educational assessment of Canadian Inuit children by developing local norms for the above tests. The researchers attempted to quantify the amount of bias present when inappropriate

WISC-R (U.S. majority population) norms are misapplied to culturally different minority group children, such as the Canadian Inuit children involved in the norming project.

For the 366 Inuit students in the norming project, Wilgosh et al. (1986) found that, using the U.S. norms, 282 students obtained a Verbal Scale Score of less than 70 (77.04% of the sample), 21 students (5.74%) obtained a similar Performance Scale Score, and 118 students (32.24%) obtained a similar Full Scale Score. As the researchers stated, *Thus, 77.04% of the norming sample would be misclassified as retarded, based on the Verbal Scale Score, and a total of 118 cases would be so misclassified based on the Full Scale Score* (p. 273). The non-verbal, Performance Scale Scores resulted in far less misclassification of the Inuit children. On the Verbal and Full scales, none of the Inuit children scored above an IQ score of 120, so that none would have been classified as gifted, when compared to the U.S. norms. A linear transformation of the data to a mean IQ of 100 resulted in a shift in the proportions of the Inuit sample scoring at the extremes of the distribution, more closely approximating Wechsler's (1974) 2.2% of the distribution scoring below an IQ of 70, with 9.02% falling at or above an IQ of 120, compared to Wechsler's 9.7%.

Wilgosh et al. (1986) concluded that the major factor accounting for the relatively poor performance of the Inuit children, using the U.S. norms for the WISC-R, was a verbal comprehension factor, given the fact that English is a second language for these Inuit children. Furthermore, they commented, *Renorming of the test, by linear transformation of scores to a higher, locally established mean or standard of performance, is not a completely adequate solution to the problem of bias in testing. ... If the child is being educated with the goal of remaining within, or moving beyond his local culture, then some comparison with national norms is indeed relevant* (p. 275). While these data rather dramatically illustrate the misapplication of standardized tests to culturally different children and the resultant misclassification of these children, the above quotation raises two critical issues. Merely renorming the biased tests will mask, but will not solve the problem of misclassification, since it perpetuates the usage of inappropriate test content to assess giftedness, and, by extension, achievement or underachievement, of culturally different, minority children. Furthermore, such solutions do not address the issue of cultural milieu and curricular content for such children. Do we want to limit their academic success to their own cultural context, or should our goal be to develop such skills and knowledge as will allow them to move readily into and within the broader cultural context? Whitmore (1986) has raised the same issues as being critical when using standardized tests with specific subpopulations.

Whitmore (1985) has identified several observable key characteristics to indicate the presence of giftedness in the absence of high scholastic achievement. Among her primary identifiers, she indicates advanced oral vocabulary and complex language structures, and exceptional quality of thought, cognitive power and problem-solving skills. With culturally different children such as the Inuit, who may have developed very limited English second-language skills and may show very limited interest in the typical classroom milieu, it may be very difficult for the teacher to observe such primary identifiers. Even such secondary identifiers as highly creative productive behaviours, initiative in pursuing *outside* projects and enjoyment of self-expression, may be very difficult for the teacher alone to assess. To illustrate, Wilgosh, Mulcahy and Watters (1985) had limited success in attempting to identify

creative giftedness in a classroom assessment context. According to Whitmore (1985), it is necessary to move beyond reliance on testing, stereotypic notions and lack of broader knowledge of such children, in order to identify those who are gifted. *Ideally, to gain a complete picture of the child's ability, parents, previous teachers, all school professional personnel within the community, should be consulted. This should be supplemented by the child's self-report* (p. 103). A further complicating variable that must be considered is that the child's subculture may differ in values and cognitive experiences from the dominant culture (Butler-Por, 1985). The consequences, e.g., high absenteeism, of failure of developers of an Inuit gifted program to consult and involve the children's parents are documented by Mulcahy, Wilgosh, Watters, and Crawford (1984).

To deal with the identified problems and issues, some researchers are suggesting radically different approaches to assessment, teaching and learning. For example, Mulcahy and Marfo (1987) have stated that assessment of cognitive ability in all populations should emphasize cognitive processes underlying learning, and should be individualized much more so than is done at present. Rather than analysing scores attained on standardized tests, the strategies, or processes, that the individual has used to arrive at a particular product should be evaluated; then one can teach learning-thinking skills to children in a direct way in order to increase their cognitive functioning. This approach would apply to all children, not just those who are gifted and underachieving. However, the latter group, particularly those who are from culturally different subpopulations, would receive particular benefit from such an approach to instruction and assessment. The focus on learning-thinking skills, rather than a specific, culture-bound curricular content, addresses concerns expressed earlier in this paper (Whitmore, 1986; Wilgosh et al., 1986).

A number of cognitive strategies programs are currently being developed and evaluated in educational contexts. The Strategies Program for Effective Learning and Thinking (SPELT) developed by Mulcahy and his associates (Mulcahy & Marfo, 1987) is designed to have the child learn how to learn through spontaneous use of self-generated learning-thinking strategies in the school and in the broader social context. Students are actively involved in the learning program to raise their awareness of their own cognitive processes and how to control those processes, to lead the students to discovery learning rather than teaching facts to them, and to challenge them to be critical, systematic and strategic in their attitude and behaviour toward learning and problem solving. In addition, a set of recommended and teacher-generated strategies is taught to the children, and they are taught personal control and generation of effective strategies. To date, the program has been used successfully with learning disabled, average, and gifted achieving and underachieving children, but not specifically with culturally different underachieving children. Two programs with similar goals, Feuerstein's Instrumental Enrichment (Feuerstein, Rand, Hoffman, & Miller, 1980), and Adams and Wallace's (1989) Thinking Actively in a Social Context (TASC) project, have been used successfully with the latter type of children. Issues described by Adams and Wallace (1989), for example, related to development of potential for Black South African children, are similar to those discussed earlier for Canadian Inuit children, and other culturally different, underserved groups of underachieving children.

To attain the ultimate goal of identification of culturally different underachieving gifted children, indeed of all such underachieving children, and development of their full potential,

models and practice must reflect dynamic assessment using culturally and academically appropriate strategies for remediating underachievement and maximizing potential. Only through such a two-fold approach can these children be enabled to perform to their full potential for their own benefit and that of society as a whole.

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SOCIAL/EMOTIONAL CHARACTERISTICS OF GIFTED LEARNING DISABLED CHILDREN

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On the basis of interviews conducted with four gifted learning disabled boys aged nine to twelve, their parents and teachers, three major themes relating to the characteristics of gifted learning disabled children were derived using a phenomenological approach. These themes dealt with interpersonal relationships, self concept and learning characteristics. Comparisons were drawn to the characteristics of gifted children, and learning disabled children.

Although *gifted learning disabled* is a label which at first glance appears to be contradictory, it may be accurate for those children who possess tremendous intellectual potential and yet struggle with many academic tasks. Such a discrepancy between potential ability and actual achievement may cause undue stress and have significant impact on learning. This study is an attempt to illuminate the experience of gifted learning disabled students' social/ emotional growth through phenomenological methodology.

Until recently the population of students referred to as gifted learning disabled has received little attention in theory and research. Historically programs for the gifted and the learning disabled have been designed with no overlap and teacher education has also proceeded along separate lines. The recent interest in children who are gifted as well as learning disabled is a result of greater interaction between specialists in both fields.

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Porter (1982) defines the gifted learning disabled as those children who have an outstanding gift or talent and are capable of high performance but who also have a learning disorder that makes achievement difficult. The incidence of gifted learning disabled students has been estimated to be approximately 2.3% in a study by Mauser (1980) that searched a population of learning disabled students for those who are also gifted. Gifted learning disabled students may be confused with underachieving gifted students. While in practice there may be no difference between learning disabled and gifted underachievers in the sense that neither group is performing up to its potential, Gallagher (1983) differentiates between the two on a theoretical basis. He considers the gifted learning disabled as experiencing problems stemming from some type of neurological dysfunction as opposed to the gifted underachievers whose problems result from limited opportunities, inadequate early education or poor motivation.

Before discussing the characteristics of the gifted leaning disabled it is helpful to examine those known characteristics of both the gifted, and the learning disabled. Once each set of characteristics has been considered seperately it will be possible to discuss those which may apply to the gifted learning disabled.

As a general rule the social/emotional development of gifted children is viewed as very positive. Davis and Rimm (1989) describe the gifted as having typically high self confidence and independence as well as an internal locus of control. Such students are able to profit by their mistakes and usually see failure as resulting from a lack of effort and not from a lack of ability; consequently, gifted students often set high expectations for themselves. Renzulli and Hartman (1971) describe gifted students as having a great deal of curiosity and a keen sense of humour. Teachers report that gifted children are above average in many desirable traits, such as courtesy, cooperation, willingness to take suggestions, social adjustment, and emotional stability (Telford & Sawrey, 1977).

With such a positive description of social/emotional development it becomes easy to develop a stereotype of the gifted child as a *super kid*, however, some gifted children also evidence negative social/emotional characteristics. They often strive for perfection and become highly self critical. They are not easily satisfied with their own speed or products. Whitmore (1988) suggests that a perceived sense of academic failure or lack of satisfaction with academic tasks may tend to encourage gifted children to withdraw or to be disruptive. These feelings coupled with the feelings of being different often intensify their emotional problems. Peer problems may occur especially in pre-adolescence or adolescence when there is a tremendous pressure to conform. Challenging the teacher, discussing intellectual questions or completing more difficult assignments may be interpreted as *showing off* (Pyryt, 1979). However, in spite of these potentially negative characteristics gifted students are viewed in general as having highly positive social/emotional development (see Table 1).

In contrast to the development of gifted children social/emotional development of learning disabled children is predominantly negative. Suran and Rizzo (1979) describe learning disabled children as suffering from *emotional overlay* which refers to *adverse emotional and behavioral problems that develop as a function of a learning disorder* (p. 266). This may manifest itself in a variety of ways including anxiety, frustration and anger towards learning. Learning disabled children are often subject to impulsivity, instability, and

suggestibility (Siegel, 1974). Bryan, Donahue and Pearl (1981) describe these students as suffering from low self esteem which often results in a perception of themselves as *dumb*. They tend to have an internal locus of control believing that they are subject to outer rather than inner forces. They are less likely to attribute success to their own ability. Consequently learning disabled students are often described as suffering from learned helplessness - because they expect to fail, they lose their motivation and therefore fail. In a series of studies Bryan (1974a, 1974b, 1976, 1977, 1978) has determined that compared to non-disabled children, learning disabled children have different interpersonal relationships with teachers and peers, have difficulty establishing friendships and eliciting positive responses from peers, are perceived as less adequate and more often rejected by peers. Bryan also indicates that learning disabled children are less accurate in comprehending non-verbal communication, consequently these children are often socially withdrawn or isolated (see Table 2).

Table 1
Social/Emotional Characteristics of the Gifted

peer popularity
self confident
internal locus of control
high expectations
above average social adjustment
emotionally stable
self critical
perfectionist
pressure to conform
curious
keen sense of humour
independent

Table 2
Social/Emotional Characteristics of the Learning Disabled

rejected by peers and teachers
learned helplessness
external locus of control
low expectations
little social awareness and judgement
high anxiety
impulsive
low frustration threshold
low self esteem
disruptive
suggestible
less accurate interpreting of nonverbal behavior
poor motivation

Recent studies (Fox, Brody, & Tobin, 1983; Maker, 1977; Schiff, Kaufman, & Kaufman, 1981) portray gifted learning disabled students as possessing characteristics in common with both the gifted and learning disabled populations. As with most learning disabled students, gifted learning disabled children encounter difficulty with tasks involving memory and perceptual abilities. However, they may also excel at tasks involving abstract thinking and problem solving as do gifted students. While these types of academic concerns have been the primary focus of research in the area of the gifted learning disabled, a study by Schiff et al., (1981) indicates that there may be cause for concern for the social/emotional development of this group.

Schiff et al. (1981) found that gifted learning disabled students were more likely to be referred for psychological assessment than for skill deficiencies. These were usually self or parent referrals on the basis that the children felt unhappy and emotionally upset because they did not fit in. Janos, Fung, and Robinson (1985) reported that gifted students who described themselves as *different* showed more signs suggesting difficulties than those children who did not describe themselves as different.

Additional studies (Daniels, 1983; Feagans & McKinney, 1981; Maker, 1977; Meisgeiger, Meisgeiger, & Werblo, 1978; Whitmore, 1988) support the idea that gifted learning disabled children may be at risk for social/emotional problems. Gifted children who have difficulty acquiring basic skills such as reading and writing may eventually begin to believe that they have little chance for academic success and are in reality not smart. These feelings may in turn produce low motivation, helplessness and a poor academic self-concept. The result of this negative attitude regarding school may be aggressive, disruptive, careless students who are frequently off-task. This inappropriate behaviour at school may actually be a result of insufficient challenge and/or frustration. Gunderson, Maesch, and Rees (1987) suggest that this self-defeating attitude contributes not only to continued academic failure but also social isolation.

In contrast, gifted learning disabled students have also been described as creative, productive and highly motivated when completing nonacademic tasks in which they are interested (Baum, 1984; Daniels, 1983; Whitmore, 1981). It may be, then, that gifted learning disabled children possess social/emotional characteristics unique from either the gifted population or the learning disabled population.

Previous studies (Suter & Wolf, 1987; Whitmore, 1981; Wolf & Gygi, 1981; Yewchuk, 1985) have suggested that additional research in all areas of gifted learning disability is needed. The area of social/emotional development is particularly important because the gifted learning disabled population is an atypical group. Senf (1983), and Baum and Kirschenbaum (1984) indicate that it may be profoundly destructive for students to be labelled and treated as only learning disabled when they also possess gifted qualities.

In a study of social/emotional development the subjects themselves are a primary source of information. Only the gifted learning disabled are able to relate what they have truly experienced; however, parents and teachers are important as secondary sources of information.

The purpose of this study was to investigate the social/emotional development of gifted learning disabled students. What characteristics do they exhibit? Are these characteristics similar to the gifted population, the learning disabled population, or are they unique to the gifted learning disabled group? The success and failure experiences that children have shape

the way in which they view themselves, interact with others, and cope with their emotions. In an achievement-oriented society such as ours success is of paramount importance. The effect of failure therefore can be extensive. The frustrating failure and rejection the gifted learning disabled may experience as a result of their unique profile of strengths and weaknesses is certain to increase their level of social/emotional stress.

Since there is an interaction between home and school and social/emotional development of the child the experiential nature of this development needs to be taken into account. A phenomenological approach incorporating the perceptions of children, parents, and teachers is therefore an appropriate method of research for this question.

The Study

Counsellors and special education teachers in a predominantly middle class, small urban school district were asked to identify students who met the criteria for learning disabled gifted as follows: (a) identification by the school system as experiencing academic difficulty and receiving assistance for these difficulties from either a resource room or special education teacher, and (b) an IQ of 120 or more on one or more of the Verbal, Performance, or Full Scales of the WISC-R, and (c) a Verbal-Performance discrepancy of 18 points or more on the WISC-R and/or subtest scatter of 7, 9, and 10 points between the highest and lowest scaled scores of Verbal, Performance or the Full Scales, respectively, on the WISC-R (Yewchuk, 1985).

The parents of these students were contacted by the counsellor or teacher to inquire if they wished to participate in the study. Those parents who responded favourably were then contacted by the researcher to discuss the study in depth and give their written consent to participate. Each student's teacher was also contacted about taking part in the study.

A single interview was conducted on an individual basis with four boys, aged nine to twelve, their parents, and their teachers. These interviews included general questions dealing with the boys' motivation and expectations, relationships with peers and adults, work habits, personality characteristics, and attitudes toward school. Students' interviews lasted between 20 and 30 minutes. Interviews with the parents and teachers varied between 30 and 60 minutes. All student and parent interviews were conducted in their homes. Two teacher interviews took place at the school while the other two were conducted at the researcher's home. Brief follow-up interviews were also conducted by telephone as needed, in order to validate information previously obtained and to pursue the merging themes. The initial interviews were tape recorded and transcribed.

Upon completion of data collection the procedures recommended by Colaizzi (1978) and Kruger (1979) was used to analyse the experiential themes expressed relative to each student and then to categorize themes for all subjects.

For each student, the significant statements pertaining to social/emotional development were excerpted from the transcript of the interviews with the child, parents and teacher. These statements were then paraphrased in an attempt to clarify their meaning (first level abstraction), and an appropriate theme assigned to each statement (second level abstraction). As each theme emerged, it was labelled and described so that it could be applied to subsequent appropriate paraphrased statements. The third level abstraction involved the grouping of themes into clusters. The clusters were social skills, peer interaction, family relationships,

self-image, locus of control, physical or emotional reaction to stress, academic attitudes, resourcefulness and approach to tasks. These clusters then formed the basis of a synthesized statement of experience describing each student. In an attempt to restrict overgeneralization, only those themes which were present in at least two of the child, parent or teacher interviews were included in the synthesis and subsequent analysis.

Having repeated these steps for each student, the clusters of themes with similar meanings were then arranged into thematic categories (Kruger, 1979) representative of combined subject data (fourth level abstraction). An extended description of the characteristics of gifted learning disabled students was written based on these categories.

At every level of abstraction, care was taken that the meanings arrived at were faithful to the original transcripts, that is, that there was nothing in the originals that was not accounted for by the abstractions, and that the abstractions did not suggest anything which was not implied on the transcripts.

The characteristics reported below are broad generalizations derived through four levels of abstraction from comments of students, teachers and parents. Detailed information relative to progressive abstraction of themes from the original data is available from the second author.

Characteristics of Gifted Learning Disabled Subjects

Three broad categories of themes emerged from the composite analysis: interpersonal relationships, self-concept and learning characteristics. In the discussion which follows those characteristics which were shared by three or four subjects are considered to be common characteristics, while those which apply to only one or two individuals are considered as individual characteristics. Since only four subjects were included in the study it was considered important to include those characteristics which are individualistic. Given a different group of subjects, some of these traits may also have emerged as common characteristics. The names reported are pseudonyms.

Interpersonal Relationships

Common Characteristics - This category is comprised of the social skills, peer interactions and family relationships sub-themes. An interesting paradox exists within this category. With the exception of Adam, the other children, at times, all demonstrate positive social skills. they know what is socially appropriate behaviour and tend to act in ways that adults describe as role models for their peers. They are not thought of as behaviour problems, but rather as easy-going, pleasant and cooperative children. Nonverbal skills are also an area of strength. These three children are sensitive to the situational mood and are aware of the feelings of others around them. They interpret facial expressions, gestures and body language with relative ease, as well as being able to communicate themselves in this way.

It is surprising then that these children experience some difficulty interacting in a positive way with their peers. Only Andrew does not seem to have great difficulty establishing friendships and maintaining these friendships for any length of time. Generally they seem to have the knowledge of how to make and keep friends, but are unable to put this knowledge to use. Their social skills with respect to peers are often weak. This difficulty with peer relationships may stem in part from a tendency to act impulsively with peers when under

stress. In addition, they may be hesitant in establishing relationships for fear of rejection because of the stigma of their learning problems. As a result, all of the children expressed frustration stemming from a lack of satisfaction with their peer relationships in spite of having many of the skills necessary for positive interactions.

Three of the children appear to relate better to adults than to their peers. This may be in part because they tend to have well developed verbal skills and are able to understand more mature conversations than do their peers. As well, since the boys are only children, they may be more accustomed to adult company.

Supportive family relationships were identified by three of the children. Although all of the parents expressed some stress in coming to terms with their child's problems, they also indicated a willingness to learn to accept these difficulties. The parents appear to be in varying stages of acceptance, largely due to the length of time that they have been actively dealing with their child's problems. It may be that the level of support and understanding that families are able to offer has a direct impact on the children's ability to cope with their own stress.

Individual Characteristics - Some characteristics within this category were unique to one or two individuals. Adam and Steven, while acting impulsively at times, also appear to be capable of being reflective. This trait seems to be increasing for them as they are more often stopping and thinking about the consequences of their actions.

Michael, although getting along well with adults, indicated that they still represent authority figures to him. As such, he sees adults as those people who discipline you. This was not expressed by any of the other boys.

Both Andrew and Steven expressed positive feelings about their siblings. As only children, the other two boys have obviously not had the opportunity to have this experience.

While expressing positive feelings about their parents, Adam and Steven also indicated an awareness of their parents' frustration with respect to their learning problems. They feel that this creates a certain tension which is exacerbated by expectations that are sometimes unrealistic.

Self Concept

Common Characteristics - This category reflects general feelings of self-esteem and is comprised of the clusters Self Image, Locus of Control and Physical or Emotional Reaction to Stress sub-themes. Remarkably, in spite of such tremendous learning difficulties, these students expressed generally positive feelings of self image and self confidence. These feelings were validated by their parents and teachers. They acknowledged that they are bright children who have many abilities. They are eager to talk about activities of which they are capable or at which they excel. All four children have well developed creative abilities in which they take pleasure. In addition, they all have relative strengths in mathematical skills and are able to achieve at least at grade level. This belief in their own abilities and perception of themselves as capable has produced feelings of self confidence. All of the children expressed an awareness of their strengths, weaknesses, needs and wants. It is only when they are mired down in the frustration of reading or writing tasks that their own self doubts surface. Three children expressed aspirations for the future, having already chosen fields in which they are likely to achieve success because they will draw on their areas of strength.

This belief in their own abilities has produced an internal locus of control for success for

three of the children. They feel that their success is a direct result of their abilities, hard work and appropriate attitude. However, because they tend to view themselves as capable, all of the children see themselves as the reason for failure. This internal locus of control for failure does not take into account that the task characteristics or demands may in reality be the reason for a lack of success. Consequently, when they are unable to achieve, they tend to take it personally and become even more frustrated.

Frustration is an emotion that is consistent across all four children. Believing that you are a capable person and being constantly reminded that you are bright makes dealing with underachievement difficult. This frustration is manifested in how these children approach academic tasks, as well as in a tendency to respond physically to stress. This reaction may sometimes be a desire to strike out in anger in order to vent some of their frustration. However, none of the children apparently act on these feelings. On the one hand, this demonstrates an incredible amount of self control, but at the same time indicates that there are many unresolved feelings that need to be addressed. At other times this frustration results in a visible tension in the face or body, or in negative attention seeking behaviour. At times these children may act impulsively, primarily with their peers, which may be a result of their build-up frustration. All of the children tend to be critical of themselves which may reflect a frustration with what they feel is an unacceptable performance.

The fear of failure is a strong theme which runs across three children. Many times it is the primary motivating force behind their attitude and effort toward school tasks. It is easy to understand why children who believe strongly in their own abilities, who repeatedly fail at tasks, begin to avoid those tasks. Each failure is another chink in their self-perception and they become motivated to protect themselves.

Individual Characteristics - Andrew possesses additional characteristics from the other children which may be reflective of his strong self-concept. Generally he is able to criticize his performance in a constructive manner and then use that information to improve subsequent performances. Andrew also tends to seek attention in appropriate ways by looking to his teacher for approval when he has been successful.

Although they are generally internally motivated, at times both Andrew and Michael seek external excuses for failure. This occurs when it is least appropriate, that is, when their failure has become a result of their own behaviour.

Michael and Steven tend to react to stress by beginning to doubt their own abilities. This causes them to believe, at times, that they are only capable of certain tasks and to avoid competitive situations.

As well as the negative emotions shared with the other boys, Adam and Michael have additional negative feelings. Both experience feelings of anger, sadness and anxiety as a result of their academic problems. This creates the extra stress of having to cope with unproductive and sometimes overwhelming feelings. Adam also tends to resort to tears when he is particularly frustrated.

Learning Characteristics

Common Characteristics - Fear of failure is also manifested in many of the themes included in this category. It encompasses how the children approach academic tasks and their

attitudes towards them. This category is comprised of the Academic Attitudes, Resourcefulness and Approach to Tasks sub-themes. Remarkably, in spite of generally negative attitudes towards school and negative approaches to academic tasks, three of the children express extremely positive feelings about their teachers. These teachers are described as very supportive and caring individuals who attempt to provide fun and interesting activities to do. However, in contrast, the children also describe themselves as often being bored at school because of the repetitive nature of tasks, or disinterested in assignments that are too difficult.

One consequence of a strong belief in their abilities is the tendency of these children to have unrealistic expectations about their achievement. They truly believe when they set out to complete a task, or learn a new skill, that they will be able to do it with relative ease. Their parents and teachers indicate that the children are genuinely surprised that they are unable to do some of the things they try. Having these high expectations, combined with learning difficulties, creates an atmosphere in which their fear of failure can flourish. As a result, three of the children tend to either avoid any academic task at which they anticipate failure or to rush through it to complete it as quickly as possible. Completing a task becomes far more important than the quality or accuracy of the work. It is also very hard for any of these children to attend to any difficult academic tasks. Their attention span is quite limited when their focus is on being finished quickly. Conversely, if they are involved in an activity they enjoy or which calls upon their talents, such as art, they are able to concentrate for extended periods of time. Not attending to a task appears to be a coping mechanism for dealing with the anticipated frustration of tackling a difficult task. However, with encouragement and support, all of the children are able to persevere even on difficult tasks.

While all of the children tend to be quite dependent when it comes to academic tasks, they are relatively independent in daily living type activities. Constant support and encouragement is needed if these children are to be able to complete challenging academic assignments. This too is likely rooted in a fear of failure and a desire to avoid potentially unsuccessful situations unless someone is there for guidance. However, three of the children are quite resourceful and are able to take care of themselves and seek their own solutions to their problems.

Individual Characteristics - Only Adam expressed very negative feelings towards his teachers. He feels they are largely unsupportive of, or not knowledgeable about, his problems. These feelings certainly must increase his stress with regard to academic tasks.

Discussion

The dominant characteristics of both the gifted and the learning disabled have been summarized in Tables 1 and 2. The experiences of the children in this study demonstrate that the social/emotional characteristics of neither the gifted nor the learning disabled clearly describe them. They do not fit neatly into either category. It would seem that in general the gifted learning disabled resemble the learning disabled with respect to negative academic characteristics yet resemble the gifted in terms of some positive emotional characteristics. In addition, they also exhibit some characteristics which are different from either the gifted or the learning disabled.

Characteristics Similar to the Gifted

The children in this study had many of the same characteristics as those reported for gifted students, e.g., Davis & Rimm (1989). Like gifted students, these children are primarily internally motivated. They believe that their successes and failures are under their own control. This tends to result from a belief in their own abilities and feelings that they will be able to achieve. However, this self confidence also tends to create high expectations which are not always realistic.

These children also share the trait of independence with gifted children, although this is generally in non-academic situations. The ability to accurately interpret and communicate with non-verbal communication is another characteristic gifted and gifted learning disabled children have in common.

Characteristics Similar to the Learning Disabled

As would be expected, the children in this study have many of the same negative academic characteristics as learning disabled children. They have a great deal of frustration and anxiety about academic tasks and the discrepancy between their performance and potential ability. These negative feelings result in unproductive approaches to tasks. They often hurry through or avoid tasks and tend to have difficulty concentrating on activities. Therefore, these children appear to suffer from the same *emotional overlay* that Suran and Rizzo (1979) reported learning disabled children experienced.

While they do not have extremely successful relationships with peers, these gifted learning disabled children cannot truly be described as being rejected by peers and teachers in the same way learning disabled children usually are. Nor do they appear to have progressed to a state of learned helplessness. While learning disabled children often believe that they cannot achieve and therefore feel helpless, these gifted learning disabled children seem to have managed to maintain, for the most part, the belief that they can achieve.

Unique Characteristics of the Gifted Learning Disabled

Some of the common characteristics which formed part of the description of the four subjects are different from both the characteristics of the gifted and the learning disabled. The powerful fear of failure that these children experience did not seem to be present in the literature for either the gifted or the learning disabled. It might be assumed that the learning disabled would also have a fear of failure as a result of their negative academic experiences. One possible reason that it might exist for these gifted learning disabled students, is that they tend to believe in their abilities and expect achievement. When they are unsuccessful, the conflict between their expectations and their achievement may heighten their fear of failure.

Inconsistent social skills were also a unique characteristic. While the children tended to have many positive social skills, they often did not make use of them. This is a different problem from children who do not have the necessary skills. Unsatisfactory peer relationships may be the result of the inconsistent use of these social skills.

A self-image which tends to fluctuate was the third unique characteristic. Although generally positive, these children's self-images are beginning to become tarnished by the continual conflict between their expectations and their achievement. Repeated failure

experiences may serve to undermine their positive self-image. It then becomes increasingly more difficult to disregard what they perceive as the evidence that they are not capable. Without support, it may be that the gifted learning disabled will eventually develop more negative characteristics such as learned helplessness.

Conclusions

Three major categories of themes emerged from the analysis of the interviews. These categories were interpersonal relationships, self-concept and learning characteristics. While these gifted learning disabled students possess many positive characteristics, they also described themselves as having many negative feelings and work habits.

In general, these children seem to possess many positive social and emotional characteristics. Their main area of need is in dealing with those academic tasks that they find difficult. It is in this area that they tend to develop negative attitudes and work habits which may ultimately begin to affect the more positive aspects of their development.

The potential for future research in the field of the gifted learning disabled is great. Specifically with respect to social/emotional development, a study such as this would benefit from follow-up using observational, scientific, or statistical methods. Areas that require more investigation include: the impact of family relationships, the fear of failure, the effectiveness of interventions such as teaching coping skills, and peer interactions. It would also be interesting to determine at what point these children begin to develop their negative feelings and work habits. This information would have a great impact on designing the social/ emotional component of an intervention program. Since this study dealt only with boys aged nine to twelve years, a similar study investigating the social/emotional development of girls would be useful. It cannot be assumed that girls would share the same experiences as boys.

In spite of a number of limitations, this type of study is beneficial in illuminating the thoughts and feelings of these children, parents and teachers that may otherwise go unnoticed. It is imperative that educators and society as a whole come to terms with the seemingly contradictory characteristics of gifted learning disabled students if we are to allow them to achieve their potential and be productive contributors to their community.

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