SABBATICAL LEAVE REPORT

FALL 1981

Mt. San Antonio College

Joe C. Payne

THE GIFTED AND TALENTED IN ADULT EDUCATION

PURPOSE

The purpose of this paper is to combine the results of research, discussion with experts, and informal study of the gifted/talented. These results are then used to determine how gifted/talented principles could be used in the field of adult education. The paper is divided into three sections: Gifted/Talented Education, Adult Education, and Recommendations.

Address 12802 Panorama Crest, Santa Ana, CA 92705

Employed at Mt. San Antonio College beginning September 18, 1974
Month Year

Date of last sabbatical leave:

From: None To:
Month Year Month Year

Type of sabbatical leave requested:

A. One semester /___/

Fall_____ Spring _____

B. One year /___/

C. Administrative /XX/

Purpose of sabbatical leave:

A. Study /XX/

B. Travel /___/

C. Study and Travel /___/

Effective dates for proposed sabbatical leave:

From October 1, 1981 To: December 1, 1981
Month Year Month Year

1. In the space below present a statement of your proposed plan of study, research, or travel, including a description of the nature of the project, the design or outline to be followed.

I am requesting sabbatical leave to engage in the study of a specific problem area in Adult Education: The potentially gifted and/or talented adult. My reasons for wanting to investigate this:a)Since 1972, the federal definition of gifted/talented has broadened from the early concept of intellectual ability to include ability in achievement, leadership, artistic endeavor, and creativity; b) Expansion of gifted and talented programs during the past ten years has affirmed acceptance of the broadened definition. Today there are over 38 states with programs for this special population. Most of these programs, however, are for elementary students. There are no programs specifically in existence for those beyond the secondary level; and c) The mean age of the general population is steadily rising. For the farsighted this can be interpreted as providing an opportunity for us in adult education to serve those growing numbers of adults who fall into the upper 3-5% of ability and who may have never been served before.

I wish to spend my sabbatical leave in research, informal study, and discussion with experts in the field of gifted/talented education at the University of Connecticut. This will enable me to combine their thinking on gifted with my experience in the field of adult education. I have chosen the University of Connecticut because of its leadership in gifted and talented and its extensive resources. The focus of the information I gain there will be on some feasible approach to meeting the needs of those adults who are potentially gifted and/or talented. The following questions will provide the framework for my study:

Of what does a "defensible" program for gifted/talented consist?
What considerations must be attended to in meeting the needs of this segment of the population?
How do learning styles affect program planning and staff selection?
How can the above translate into providing defensible programs for gifted/talented adults?

II. State the anticipated end result, particularly as it will help you to render a more effective service to Mt. San Antonio College.

The findings of my sabbatical will benefit MSAC by providing insights which will, in turn, be applied to adult education in serving those adults who potentials have not been realized. As those questions which have been listed on the previous page are answered, they will possibly lead to the following outcomes:

The review of present program offerings relative to the needs of adult gifted/talented.
The development of "defensible" programs for adult gifted/talented.
Greater understanding of the characteristics of the adult gifted/talented.
The addition of a greater dimension to the adult education program at MSAC.

Any change or modification of the plans as evaluated and approved by the Committee must be submitted to the Committee for reconsideration.

Signature of Applicant Joe C. Payne Date 11/13/80

APPROVAL OF THE DIVISION

Signature Edward Hernandez Jr. Date 11/12/80
Chairperson

APPROVAL OF THE OFFICE OF INSTRUCTION

Signature Joseph M. Zagorski Date 11-17-80
Vice President, Instructional Services

APPROVAL OF THE SALARY AND LEAVES COMMITTEE

Signature Walter L. Collins Date 6-18-81
Chairperson

ACKNOWLEDGEMENTS

This Sabbatical Leave Report is presented to the Board of Trustees of Mt. San Antonio College with sincere appreciation. I am assuredly indebted to the District for the opportunity to broaden my professional perspectives so that I could improve myself and my services to Mt. San Antonio College.

I also wish to acknowledge the help provided by the University of Connecticut and specifically those professors and doctoral students who provided me with information for this task. Their discussions and guidance were invaluable in the preparation of this paper. I also wish to acknowledge the opportunity afforded me to make use of the extensive collection of books and periodicals available through the Teaching The Talented Program.

TABLE OF CONTENTS

INTRODUCTION

Statistically, 3% of the total population is projected to fall within the category of gifted/talented. While actual numbers rarely prove to be lower than what is projected, in some demographic areas such as Beverly Hills, Hillsborough, etc. they have been as high as 15%. Concern for this category has grown in recent years, generating data supporting the development of programs at the elementary and secondary levels. Since 1970, over forty states have started gifted/talented programs for eligible students. In over half of these states, gifted children are subject to the same regulations as those with learning disabilities. This indicates that gifted/talented is considered to be a "non-traditional" category which therefore needs "non-traditional" strategies. This paper will examine how these needs are being met, along with emerging definitions of giftedness and alternative methods of program implementation; concomitant problems will also be considered as related to current research and analysis.

A second recent phenomenon has been growth in adult education. Rising trends in mean age of the population, the desire for individuals to upgrade work-related skills, personal development, and relevant programs have contributed to this growth. The adult group involved have also been the object of data collection and program development. And the literature would indicate that consideration is being given its "non-traditional" members but not including the gifted/talented. It is perhaps time for the potentially gifted among adult learners to be included as "non-traditional" learners and receive the special attention they deserve and need.

STATEMENT OF THE PROBLEM

This paper deals with the gifted/talented: their needs, and the programs developed to meet these needs. It also explores the possibility that there is a necessity for attention to this group among adult learners. My experience in the field of adult education has led me to believe that there are individuals in our programs who would benefit from treatment, whether in the form of counseling, specific programs, or both, to meet their special requirements. Because little, if anything, is being done currently in this area, I am investigating the thinking on gifted/talented education through the literature and personal interviews with experts in the field. I will then combine this investigation with my own knowledge and experience in adult education to make possible recommendations for a relevant pilot program for the adult potentially gifted/talented.

Significance:

The significance of the problem is not evident from the literature. Little, if anything, has been written about the needs of the gifted/talented adult learner. However, that this segment of the "non-traditional" learner group has not been attended to may be a case of lack of focus rather than lack of potential significance. Writers and researchers in adult education focus on the needs of other non-traditional groups, but as yet have not turned their attention to the gifted. I propose that the time has come for this to happen. Only through the instigation of pilot programs for gifted/talented adult learners can we begin to establish hypotheses about their needs and the types of programs, if any, which will most help them. If

there is any way that adult education administrators can have the foresight to develop these programs, they will expand the effectiveness of adult education.

Assumptions:

One major assumption of this paper: it is necessary to see development as continuous, employing a pedagogical/andragogical approach[1] which does not distinguish adulthood as being completely separate from childhood but rather as growing out of childhood. Even if we consider differences which occur with age in such attributes as memory, motivation, speed, mathematical ability, and creativity we still must recognize that differences are for the most part a matter of individual abilities. Research by Terman, Wechsler, Thorndike, Lorge, Thurstone, and others have confirmed this.

Another assumption necessary for consideration of gifted/talented adults is that it is possible for gifts to be latent and undeveloped. If one looks at general theory in adult education, much of what is done is predicated upon the possibility of developing latent abilities, especially in meeting the needs of the disadvantaged. This concept needs to be extended to the gifted/talented.

Definition of terms:

Non-traditional--those students who fall within the upper and lower 3% of the population in intellectual ability plus those who have learning disabilities such as language problems, physical handicaps, cultural disadvantages, etc.

---

1. Knudson, Russell S., "An Alternative Approach to the Andragogy/Pedagogy Issue", Lifelong Learning: The Adult Years, April 1980, page 10.

Gifted/talented, gifted, talented--those who fit within the federal definition. (See Appendix F)

Potentially gifted/talented--those who have not developed their gifts and/or talents as indicated by standarized measures. Achievement does not come up to capability.

I.Q.--"Intelligence Quotient" as determined by scores on an individual intelligence test such as the Stanford-Binet or the Wechsler.

Limitations:

The limitations of this study are: 1) Lack of subjects which could be treated quantitatively. However, it is the development of hypotheses with which we are concerned, not the explication of existing hypotheses; and 2) Because of time considerations, I have not investigated the adult education practices in other states to determine if they have programs for the adult gifted/talented. It is verifiable, however, that the literature on these adults is apparently sparse.

Rationale:

The rationale for this study is developed from two divergent educational areas: 1) Gifted/talented education in the public schools, and 2) adult education. The literature on the former has expanded during the past twenty to thirty years (see Appendix A for a history of the G/T movement) so that there is qualitative and quantitative research and description available. The latter, as another rapidly expanding area, is also based on theory which represents the best thinking of educators, psychologists, and gerontologists on the subject. The combination of gifted/talented and adult education in this study is not based on existing theory but rather

the need to develop theory and best practices.

Procedures: The method of investigation used here will include a review of the literature, interviews, and informal discussions with professors and doctoral students at the University of Connecticut. The interviews will be ethnographic;[2] seeking individual perceptions. (See Appendix B for a list of the questions asked) The interviews will allow for discussion and interchange based on my experience in adult education and will hopefully permit participants to build a possible relationship between adult and gifted/talented education. Because the interviews are informal, I will not include specific quotes. However, I will footnote general statements as they represent the thinking of those who participated.

Educated opinion is included in this study as it represents years of active involvement in the respective fields of the participants. Any conclusions and recommendations contained here, however, will be the results of my interpretations of that which transpired.

---

2. Webb, Eugene, et al, Unobtrusive Measures (Chicago: Rand, McNally, and Co., 1969.) pages 1-35.

THE GIFTED/TALENTED

Some Historical Perspective: Programs for the gifted have varied in scope and purpose as the result of changing and/or differing perceptions of the nature of giftedness. Early descriptions focused on its parallels with insanity. Both Nisbet's The Insanity of Genius and Lombroso's The Man of Genius use this approach and one need only to read a little of the voluminous material on William Blake to realize his dilemma.

Attitudes have changed radically during the twentieth century, especially with the publication of the results of Terman's longitudinal study of high I.Q. children in California.[3] While his work focused on one facet of what is accepted as giftedness today, it did begin to lead toward broader concepts. Others responsible for early definitive work were: Getzels and Jackson, Virgil Ward, J.P. Guilford, Paul Witty, David Wechsler, Paul Torrance, John Gowan, Julian Stanley, and more. Their work on theory of learning, creativity, curriculum and the intellect comprises the basis for most program development in gifted/talented. (For a bibliography of their work, see Appendix C)

Current leaders in the field of gifted include J.S. Renzulli, John Feldhusen, Dorothy Sisk, Donald Treffinger, Mary Meeker, Calvin Taylor, and others. This group tends to see giftedness as a broad conception including a variety of abilities. (Appendix D contains descriptions of their programs)

What are the characteristics of the gifted/talented: No longer can we merely cite an I.Q. score in describing the gifted. Several lists of characteristics

---

3. Terman, Lewis M., "The Discovery and Development of Exceptional Talent", American Psychological Association Journal, Vol 9, no. 6 (Jan 1954) pages 221-230.

are available (see Appendix E). One could perhaps best summarize them by concurring with J.S. Renzulli in his definition of giftedness as having three major characteristics: "Task commitment," "Above average intelligence," and "Creativity".[4] Another source which gives a clear description of what states must consider as gifted when developing programs comes from the Federal Office of Gifted/Talented (see Appendix F).

Problems associated with gifted/talented: It is often assumed that the gifted will prevail in spite of other influences. This does not appear to be the case. It is difficult to "march to a different drummer". It is difficult to make intuitive leaps when those around you must proceed step by step. It is difficult to understand complicated theories and then find that everyone else is unclear--including the teacher. Gifted/talented children do not necessarily learn to read at an early age and may feel that "Dick and Jane" is boring and silly anyway. The gifted need someone with whom they can communicate and who will understand that there is more than the conventional wisdom. They often cannot tolerate the sequential, linear presentation of material. They may openly question teachers, parents, and peers about accepted "truths". They need understanding and, even more important, an opportunity to pursue their interests and accomplish their goals. If not allowed and encouraged to do that, they may very well turn off to learning.[5]

The gifted/talented student does not initially seem oriented toward success in a specific field. i.e. Striving to invent the "perfect" energy

---

4. Renzulli, J.S., The Enrichment Triad (Mansfield Center: Creative Learning Press, 1977) pages 1-11.
5. Interview with Kay Merriam, doctoral student, May 11 1981.

development equipment, agonizing over painting the "perfect" sunset, etc. does not seem to be a dominant characteristic of the gifted. They do have specific interests, but these may change periodically with new insights and exploration into unknown fields. They are often anxious to experiment in a range of subject areas, and it may be by chance that they come into contact with the "right" combination of need, interest, encouragement and success leading to continued development of expertise in that field.

Renzulli advocates providing opportunities for development of skills in the "real" world. This has often been minimized in school situations which serve to prepare for later participation in non-school situations. Renzulli goes on to demonstrate through programs that have adopted his theories and practices that a poem selected for publication by a national journal is of greater value in encouraging the student than a poem done for a grade.[6] Recognition as opposed to grades then becomes central to success.

Identification of the gifted/talented: Identification of the gifted has progressed far beyond assessment of "genius" and even beyond the use of individual intelligence tests such as the Stanford-Binet and Wechsler Intelligence Scales. Currently, it is considered absolutely imperative to use a variety of methods including teacher observation, parent recommendation, peer or self nomination, and test results from such instruments as creativity tests, intelligence tests, scales, etc.

The five types of giftedness recognized by the U.S. Office of Gifted/Talented have done much to encourage states to adopt a broad-base indentification system. California, for example, has recently passed legislation which stipulates that IQ will no longer be considered the sole determinant

---

6. Sally Reis observation at the Torrington Schools, May 13, 1981.

of giftedness. Granted that legislation alone cannot change thinking, it can still encourage or even mandate use of the broader definition.

While scales, tests, interviews and observations are important, I refer once again to Renzulli who maintains that perhaps the most important indicator of gifted/talented may be what is produced by the individual or, as he puts it "giftedness is in the response".[7] This does not answer the question of undeveloped potential; however, it could very well be the person who fits into that category who has the greatest need for guidance, encouragement, and other professional services.

Facilitator Skills: One of the most crucial but least emphasized aspects of meeting the needs of the gifted/talented segment of the population are the special skills needed by involved professionals. Few studies give conclusive evidence as to what these skills are. However, in discussions with facilitators and administrators, I have heard the following: 1) Use of a variety of learning/teaching styles which focus on verbal and visual information presented in both a random and sequential format[8] (see Appendix G for further information on learning styles), 2) Enthusiasm for a variety of subject areas, 3) Interest in and knowledge of the psychology of learning, 4) A self-concept which allows for dealing positively with individuals who are more knowledgeable in specific subject areas, and 5) Management abilities which enable the facilitator to help students find resources and outlets for their products.[9]

---

7. Renzulli, J.S., California Association for the Gifted Conference, L.A. March, 1979
8. Gregorc, A.S., Learning Styles notes, Lecture at UCONN, May 1981
9. Discussion with Kay Merriam, Karen List, Sue Baum at UCONN, Oct 1981

Program Alternatives: A wide variety of methods and theories are accepted along with related delivery systems. Choice in this matter is usually predicated on the philosophy of the district, funds available, and accessible equipment, materials and space. They range from full-time programs with homogeneously grouped gifted students to specific exercises offered for short periods within regular classrooms. Theoretical bases provide backing for acceleration in some instances,[10] additional work in existing classes,[11] exercises in development of mental processes,[12] etc. A more thorough description of various delivery systems is given in Appendix H)

Community Resources: An additional component of successful programs involves the use of other resources. Because, as has already been mentioned, gifted students often possess a startling amount of information and curiosity about a specific field, and because it is advocated they participate in the "real" world with "real" products, the use of mentors is imperative. Mentors can provide the expertise and the insights into an endeavor or profession that the facilitator may not have. The job of the facilitator would be to find the mentor and arrange for access. The function of the mentor then would be to communicate his or her special knowledge to the student. (See Appendix I for more information about the use of mentors.)

Additional community resources are: Advisory council members, special materials, equipment, and experts. Most important, perhaps, is the necessity of community support. According to the facilitators I interviewed, if the community-at-large is in favor of a gifted program, regardless of personal ties with the program, then it has a much better chance for success.

---

10. Feldhusen, John, CAG Conference, Los Angeles, CA., March 1981.
11. Taylor, Calvin, lecture notes at the University of Connecticut, May 1981.
12. Meeker, Mary, discussion at the CAG Conference, Los Angeles, CA., March 1979.

Summary and Conclusions: The field of gifted/talented education has expanded in definition from "genius" to a broad conception which allows for gifts and/or talents in many areas of cognitive, affective, or physiological capability. Numbers reached have increased because over forty states have started programs since 1970. Alternative delivery systems range from full-time programs to exercises which take minutes per day in the regular classroom. Although there are several theories and associated practices, the one I have chosen to emphasize is that developed by J.S. Renzulli because it involves students in "real" problems of the "real" world. It also provides a systematic way of developing specific skills and talents into marketable abilities. The teacher, in this model, is primarily a facilitator and provides management more than direct instruction so that participating students can develop expertise in keeping with their individual interests and initiative.

Reliance on the community is necessary: Mentors can offer a high degree of involvement in specific areas; community resources provide materials and equipment that would otherwise be out of reach. Community support can provide political clout when pressure is exerted to go back to having only basic programs.

Not all students who need a gifted/talented program receive its services. They may not be recognized, there may not be a program in their community, or they may be suppressed through some disadvantage--cultural and/or personal.

If we could assume that all eligible children have had real opportunities to develop their gifts/talents, then we would not need to be concerned over that 3% as they become adults. However, considering the growing numbers of adults in other categories--traditional or non-traditional--who are being served by adult education programs, then this group must also be worth attention.

THE ADULT LEARNER

Introduction: The development, emphasis, and direction of gifted/talented programs within elementary and secondary schools have provided a rich variety of information about those children. But what about adults? Only infrequently does the literature refer to the adult potentially gifted--and then only in reference to future program goals. However, even though in this study I am assuming the transition from childhood to adult is a gradual one, there are certain questions which do come up: What is it about the adult that is similar to or different from the child? What effect do these similarities/differences have on learning situations? How do present programs meet the needs of adult learners?

One statistic which has caught my attention is that 35% of high school dropouts are high IQ students.[13] While we now know that IQ does not represent the entire spectrum of gifted/talented, it does indicate that there are young adults who were not reached in the public schools and perhaps will never be reached unless adult education provides something for them. It is lamentable that any adult should not reach his or her potential, but it may be especially so when that potential could be so great. It is my contention that gifts and talents do not atrophy upon voting age--although that might be questioned at election time. Adults have frequently attained a stance of maturity and self-knowledge which could allow them to truly develop their gifts for the first time--if they knew how to go about it. In this section I shall explore the literature related to the adult learner in attempting to establish whether

---

13. Sisk, Dorothy, Former head of the U.S. Office of Gifted/Talented: Speech at CAG Conference, Los Angeles, 1979.

or not something is being done or should be done about this "non-traditional" segment of the adult population--the gifted/talented adult.

What adults are reached by adult education programs? Information related to the potentially gifted/talented adult is scarce. A recent search produced nothing other than a few articles related to the presence and treatment of this group at the university level. Minimal mention has been made in reference to the need to deal with this small segment of the adult population, but only as part of future projects.

If, however, we search for reference to other special cases such as the disadvantaged, minority groups, etc. we find numerous examples. These articles detail means by which the disadvantaged can be reached effectively.[14] However, the references which relate most closely to the gifted/talented adult are those which deal with the adult culturally disadvantaged.[15] It is suggested that these adults can learn as well or better than children with the same native abilities but with an edge given by willingness and purpose.[16]

What are the similarities/differences between children and adults relative to learning? Longitudinal studies of intellectual ability done by Terman, Thorndike, Hollingsworth, Wechsler, and others question the frequently held notion that "older is not better."[17] They have usually concluded that while speed and memory diminish, these could be compensated for by other improved characteristics such as judgement, vocabulary, attitude, etc. Math ability also seems to decline, but it was emphasized that individual differences were

---

14. Ulmer, Curtis, Teaching the Culturally Disadvantaged Adult, (N.J.: Prentice-Hall, 1972) pages 23-30.
15. Ibid, pages 86-88
16. Knudson, Russell S., "An Alternative Approach to the Pedagogy/Andragogy Issue, "Lifelong Learning: The Adult Years, (April, 1980) page 9.
17. Kidd, J.R., How Adults Learn, (N.Y.: National Board of the YMCA 1963) pages 75-92.

so great that generalization could be misleading.

Long gives some insights into adults and learning. Citing studies on cognitive aspects such as memory, critical thinking, thinking, intelligence, interference, and creativity, he states that memory does decrease, but apparently he doesn't look into the interaction between this and other factors such as physiology, learning environment, nature of task, etc.[18] His conclusions are based on between-group statistics, but could show some interesting results if he were to further investigate the within-group variation and the interaction--a frequently more informative statistical manipulation. While most of what is done in adult education is based on theory supported by empirical data, the data on adult abilities could be expanded by the use of more sophisticated quantitative methods.[19]

Adults may have better self-knowledge.[20] Certainly one of the characteristics developed from living longer is becoming more aware of ones capabilities, desires, shortcomings, etc. Adults are also in a better position than children to find out more about themselves.

Although motivation has already been mentioned in context with captive audiences, it is important enough to list by itself.[21] Adults are not compelled to go to school by law. They are there because they want to be--for whatever reason.

Adults have the advantage of taking classes by choice, but they may be handicapped by disadvantages which have become ingrained. i.e. A child

---

18. Long, H.B., Are They Ever Too Old To Learn? (Edgewood Cliffs, N.J.: Prentice-Hall, 1971, pages 15-38.
19. Cook, Thomas and Donald Campbell, Quasi-Experimentation, (Chicago: Rand McNally, 1979) pages 98-99, 134-36.
20. Ship, Travis, "Kurt Lewin: Revisited", Lifelong Learning: The Adult Years, June 1978, page 38.
21. Herem, Maynard A., "Adult Motivation to Learn", Lifelong Learning: The Adult Years, December 1978, pages 8-9, 30.

may "think" that he cannot draw a horse, but by the time he becomes an adult he will "know" he can't--regardless of his true ability. This type of suppression is difficult to overcome in the adult unless motivation is strong and counseling is sensitive.

What effect do these similarities/differences have on learning situations for adults? The adult may slow down in speed, creativity, mathematical ability, and memory, but these changes are not dramatic and are as much a consequence of individual differences as of declining abilities. Also, the adult may compensate for these losses by gains in motivation, judgement, vocabulary, and accumulated knowledge. The net effect of these forces, which are at work in the adult, is necessary to make a successful adult program and be aware of them and use this information accordingly.

How do present programs meet the needs of the adult learner? The literature is abundantly full of descriptions of program goals, needs assessments, etc. which speak to the needs of the adult learner. Classes which emphasize individual differences, career possibilities, students with special needs, the non-traditional student, fostering creativity, fostering self-actualization, the problems of the disadvantages, and so on are described.[22] Alternatives are suggested in the form of tutors, counselors, a variety of delivery systems and learning laboratories for those students who do not learn in traditional ways. Emphasis is placed on counseling methods, teaching methods, curriculum and content so that the individual adult is taken into consideration not only in the planning stage but in the process. A caution is necessary however:

---

22. Conference Report: Providing Comprehensive Education for California Adults in the 1980's, Pacific Grove, California April 25-29, 1979 pages 1-139.

There is tremendous importance in giving new systems an opportunity to meet the needs of this group rather than merely tacking on to current systems.

Present trends are apparently speaking to the needs of most adults and if one is to accept the figures given for growth in adult programs, while remembering that adults are going to school by choice, then one must conclude that the efforts are more than satisfactory. However, there is one group that is not being served in adult programs today: That group is composed of those adults who may have undeveloped gifts and talents. If the gifted/talented have been a part of public education for only the last ten years, there are any number of adults who never had the opportunity to develop their capabilities. And, if approximately 35% of high school drop-outs are indeed intellectually gifted, this is an area which must be recognized by adult education leaders.

The adult education teacher: Characteristics of the adult education teacher, according to the literature and my own experience, must include awareness of individual differences, attention to personal feelings of inadequacy, ability to relate to a range of personalities, knowledge of the human transaction, and awareness of education as a medium of growth and change.[23] The teacher must also act as a facilitator, providing management and skills to help the student find mentors, materials, resources, and etc.[24]

Successful adult teachers should have practical experience, self-confidence, ability to share know-how and ability to relate easily. They have also been noted to have patience, adaptability, enthusiasm, etc. Adaptability is especially necessary when considering the variety of types of instruction encouraged.

---

23. Knox, Alan B. (ed), Teaching Adults Effectively (San Francisco: Jassey-Bass, Inc., 1980) no. 6, pages 1-68.
24. Ibid.

Others: Counseling is an important part of adult education. It must, to be effective, include testing services, non-directive counseling techniques, and dissemination of information on job placement, community services, etc.

Properly conducted testing services provide adults with information about their abilities, strengths, weaknesses, interests, and aptitudes. Testing, however, is only one facet of this service. The counselor must be able to help the adult learner by interpreting test results. Numbers have no significance unless accompanied by knowledgeable and accurate explanation, not only of results but of the direction indicated. In addition, the counselor must be able to translate test results into terms the learner can understand and appreciate.

Non-directive counseling is crucial. Adults have usually gone far beyond allowing themselves to be manipulated. The counselor must therefore use techniques which allow learners to draw conclusions. It is possible for adults to have aptitudes and not know that a job actually exists to make use of these aptitudes. Therefore it is up to the counselor to be knowledgeable about divergent jobs and skills.

Community service opportunities are also important. Translating abilities and aptitudes into marketable skills will require the expertise of someone in the field. The counselor or the teacher should be able to find that person.

Evaluation: As in any evaluation procedure both formative and summative evaluation should be part of a successful adult education program. Both subjective and objective data should be collected so that statistical inferences can be drawn and backed up by personal experience and reason. Unfortunately, misinterpretations can arise from purely statistical evaluation procedures,

because of the post hoc nature of the situation. Attitude scales and interest inventories can give information but must be interpreted to be useful. Both internal and external evaluation should be used to insure relatively unbiased conclusions. Evaluation frequently presents a problem because it is easier to ask for hard data than it is to accumulate it. Finally, communication of the results of evaluation must be attended to. Otherwise it is of little value except as an exercise.

Evaluation is helpful in organizing a program and should be considered a component from the onset. i.e. Program goals need to be articulated in light of the evaluation procedures which will be used to assess them.

Summary and conclusions: Adult education has grown immensely in the past several years. A rising mean age of our population has contributed to this growth. Motivation to improve ones self has also contributed. And societal benefits have encouraged the funding and development of those programs.

Programs are offered in a number of subject areas: Job skills, leisure activities, personal development and management skills comprise some of the offerings. They provide for the non-traditional adult who has language difficulties, learning disabilities, and cultural disadvantages. The one group denied help in this non-traditional category, however, is the gifted/talented adult. Perhaps the time has come to change that situation.

Longitudinal studies of intellectually gifted have shown that between-group differences are greater in speed, memory, mathematical ability, and creativity--especially after the late forties. However, these are perhaps mitigated by increases in judgement, attitude, vocabulary, and accumulated knowledge. At any rate, individual differences within-groups may be important enough to lessen the impact of any generalizations made regarding

between-group differences.

The adult is not a captive learner; therefore, teachers need to sell their product more than they perhaps do in elementary and secondary education. Teachers require a range of skills and frequently function as a facilitator rather than merely transmitting information.

Evaluation is important and should be considered in program development. It must be both objective and subjective but cannot be based on experimental design because of the post hoc nature of the information received.

If we can assume that what is written about adult education is actually a working part of every program, then adult education can certainly be applauded for initiating new programs to meet the needs of growing numbers of interested adults. There is one group, however, that is not being sought after. That is the potentially gifted/talented adult population. Although it comprises a very small part of the total population, its numbers are statistically equal to those with learning disabilities--merely occupying the other tail of the bell-shaped curve. It was once thought that the gifted would "make it" in spite of whatever happened to them. This is now known to be false. They often need encouragement, organizational help, and the expertise of a mentor to bring out their capabilities.

RECOMMENDATIONS

Introduction: Before starting this study I had little knowledge of the gifted/talented other than what I had learned about California's Mentally Gifted Minor (MGM) programs. And yet, teachers came to me periodically, incredulous over the intuitive leaps and logical connections one of their students might make. Other teachers would express concern and sometimes dismay over their lack of ability to properly guide a student because of his or her non-acceptance of the traditional "truths" of some particular subject matter. There are numerous examples of those atypical situations: I now perceive them as the behavior of a possible gifted adult.

Everyone doesn't reach his/her potential as easily as he/she may reach majority. If there are adults who seek out adult education programs because they want something that will fit their specific traditional or non-traditional needs, there are also adults who would seek out adult education programs because they have a unique potential that is not being realized.

Value to the college: At the beginning of the study, I anticipated four general outcomes. Now, through the process of discussion, reading, interviewing, and synthesis, I can offer a more concrete set of recommendations which will relate to those general outcomes. They include: 1) The review of present program offerings relative to the needs of adult gifted/talented, 2) The development of "defensible" programs for adult gifted/talented, 3) Greater understanding of the characteristics of the adult gifted/talented, and, 4) The addition of greater dimension to the adult education program at MSAC.

The following recommendations focus on those predicted outcomes but with an added dimension--that which can perhaps be of the greatest value to the college: That to provide for those "non-traditional" students who fall within the category of potentially gifted/talented, MSAC should consider and act upon their needs in developing all college courses--not just those available within the responsibility of Adult Education.

How can MSAC provide for the needs of the gifted/talented?

1. A program should be initiated which provides 1) for the evaluation of individual creative abilities, learning styles, and aptitudes, 2) exploratory courses which would approach learning about diversified practical and theoretical areas through a variety of teaching styles. In these, students would participate in their learning. 3) Creativity training to enhance that aspect of giftedness, and 4) opportunities for the investigation of problems with management provided by the facilitator. These components would be part of a one semester course. It would be divided into four sections--each focusing on the areas listed above.

2. Provide inservice for teachers: Courses now offered could challenge almost anyone's abilities if the involved teachers recognize the depth and breadth of these abilities. Therefore my first recommendation would be to provide general inservice for all adult education teachers so they can recognize the gifted/talented adult. Additional inservice could then be offered to those who wanted to participate as facilitators. All teachers do not feel comfortable with this group, just as all teachers do not feel comfortable teaching math or working with disadvantaged students. Therefore it is important that everyone be given enough background to recognize the adult gifted and then decide if they wish to go into the field in more depth.

The first inservice would focus on:

a. Characteristics of the gifted/talented

b. Facilitator techniques

c. Learning/teaching styles

The second inservice (or series of inservice meetings) would focus on:

a. Creativity

b. Divergent thinking

c. Right/left brain development

d. Identification of the gifted/talented

While all adult education teachers are encouraged to recognize individual differences and provide for these in instructional techniques, the inservice meetings would concentrate specifically on strategies for the gifted/talented.

2. Provide inservice training for counselors: Counselors in adult education are encouraged to provide a variety of services to students. Counselors with special interest in the gifted/talented would need to receive inservice related to this group. This inservice would focus on linking cognitive and affective abilities with concomitant skills and related progressions in thought and action. They should receive inservice on community resources for the unique abilities of the gifted. They should also receive inservice on helping to remove blocks some adults may have--for example: developing task commitment. Another inservice topic would be testing and interpretation of the tests for gifted students. Frequently, tests which are exemplary for other non-traditional groups are not valid for the gifted. Counselors would therefore need to become acquainted with the appropriate measures.

3. Counseling groups: The adult potentially gifted may have successfully blocked divergent production abilities, need support for development of new

skills, lack the knowledge of outlets for abilities. To remedy these deficiencies, I recommend that counseling groups be set up so that individuals could meet with their peers and a counselor to discuss projects, concerns, problems, etc. The gifted have frequently avoided contact with others because of some difficulties in communication. It would be beneficial to them to be with others who are having similar problems, successes, etc. The purpose of these groups would not be to relegate their individual experiences to group discussion topics, but rather to provide feedback, encouragement and an opportunity to realistically discuss what they are going through.

The three recommendations given here would be carried out on a pilot basis with success measured by the numbers of participating individuals. If the program were to be continued, evaluation techniques would be incorporated and some longitudinal studies conducted.

Funding: The final consideration would be funding. Because courses now offered would provide the skills a gifted/talented adult might need, there would be little current need for introducing new courses. However, the in-service for teachers and counselors and the ongoing counseling group would require additional funds.

Conclusion: Similarities between what is now offered in adult education and what comprises a satisfactory gifted program cannot go unnoticed. They both advocate meeting individual needs as opposed to standardization of tasks and outcomes. Neither group can be considered a captive audience: Gifted/talented children can drop their program as can adults. They are both highly motivated, as indicated by their presence in the respective

programs. They both need facilitators more than teachers; to develop their interests and abilities without confinement.

The major difference between the two educational enterprises is not a product of aging but of focus: The elementary and secondary gifted/talented program is focused on the development of indivudals within the non-traditional group who, because of their unique abilities and aptitudes, need special attention. The adult education enterprise focuses on all other non-traditional students. Perhaps it is time that adult education began providing for this group. They need the help when they are children, and there is no indication that this need ceases to exist in adults.

REFERENCES

Books: Gifted/talented

Barbe, Walter and Renzulli, J.S. (Eds.), Psychology and Education of the Gifted, New York: John Wiley and Sons, 1975.

Burroughs, M.C., Restraints on Excellence, Lewiston, Idaho: Orchards Printing, 1977.

Cook, Thomas and Campbell, Donald, Quasi-Experimentation, Chicago: Rand-McNally, 1979.

Hollingsworth, Leta, Gifted Children, New York: MacMillan Co., 1926.

Lombroso, C., The Man of Genius, New York: Charles Scribner's Sons, 1895.

Nisbet, J.F., The Insanity of Genius, London: DeLaMore Press, 1895.

Renzulli, J.S., The Enrichment Triad, Mansfield Center: Creative Learning Press, 1977.

Terman, Lewis, Genetic Studies of Genius, Stanford, CA: Stanford University Press, 1947.

Ward, Virgil, Differential Education for the Gifted, Los Angeles: National/State Leadership Training Institute, 1980.

Webb, Eugene, et al., Unobtrusive Measures, Chicago: Rand-McNally, 1966.

Periodicals: Gifted/talented

Barbe, Walter, "Characteristics of Gifted Children", Educational Administration and Supervision, XLI, No. 4.

Guilford, J.P., "Creativity", American Psychologist, V, No. 9.

Leahy, Robert, "Teaching Through a Spectrum of Styles", Lifelong Learning: The Adult Years, December, 1977.

Roe, Anna, "A Psychologist Examines 64 Eminent Scientists", Scientific American CLXXXVII, No. 5. (Nov. 1952)

Terman, Lewis, "Discovery and Encouragement of Exceptional Talent", American Psychologist, IX, No. 6. (June, 1954)

Thurstone, Thelma, "Primary Mental Abilities of Children", Educational and Psychological Measurement, I, No. 12. (1941)

Books: Adult Learners

Knox, Alan B. (Ed.), Assessing the Impact of Continuing Education, San Francisco: Jossey-Bass Inc., 1979.

Long, Huey, Are They Ever Too Old To Learn?, Englewood Cliffs, N.F: Prentice-Hall Inc., 1971.

Lorge, Irving, et al., Adult Education: Theory and Method, Washington, D.C.: Adult Education Association, 1963.

Lorge, Irving, et al., Adult Learning, Washington, D.C.: Adult Education Association, 1965.

Ulmer, Curtis, Teaching the Disadvantaged Adult, Washington, D.C.: National Association for Public Continuing and Adult Education, 1969.

, Educational Futurism, (1985 Committee of the National Conference of Professors of Educational Administration.) Berkeley, CA.: McCutcheon Pub. Co., 1971.

Periodicals: Adult Learners

Herem, Maynard, "Adult Motivation to Learn", Lifelong Learning: The Adult Years, December, 1978.

Knudson, Russell, "An Alternative Approach to Andragogy/Pedagogy Issues", Life-Long Learning: The Adult Years, April, 1980.

McCullough, K. Owen, "Adult Individuality: Real or Imagined?" Lifelong Learning: The Adult Years, April, 1979.

Shipp, Travis, "Kurt Lewin: Revisited", Lifelong Learning: The Adult Years, June, 1978.

Report:

California Community College Community Services Association and California Community College Continuing Education Association, Providing a Comprehensive Education for California Adults in the 1980s, April 25-27 at Asilomar, Pacific Grove, California.

LIST OF APPENDICES

APPENDIX A -- The History of the Gifted and Talented Movement

From The Idaho State Manual on Gifted/Talented Education

MILESTONE CHART

DATE	EVENT
1869	Francis Galton publishes Hereditary Genius, the first modern work on exceptional mental ability.
1891	The Cambridge Double Track Plan for normal and bright children is adopted.
1908	Binet and Simon introduce the term "mental age."
1910	Lewis M. Terman initiates the longitudinal study of Genetic Studies of Genius.
1916	Stanford-Binet Individual Test of Intelligence devised.
1920	Cleveland begins the first public school classes for gifted/talented children - The Cleveland Major Work Classes.
1922	The Council for Exceptional Children is founded by Elizabeth Farrell to meet the needs of all exceptional children, including the gifted and talented.
1926	Leta Hollingsworth uses enrichment programs for the first time in the New York City public schools.
1930	The Committee for Special Classes for the Handicapped and Gifted is established as part of the White House Conference on Child Health and Protection. The Committee estimates there are approximately 1.5 million gifted children in the U.S.
1942	Leta Hollingsworth publishes "Children Above 180 I.Q.", the first study of the super-intelligent.
1950	The National Society for the Study of Education dedicates its 49th yearbook to Exceptional Children: The Handicapped and Gifted.
1951	Paul Witty publishes The Gifted Child, which sparks a mini-explosion of interest in bright children.
1957	The U.S.S.R. launches Sputnik I, creating a crisis of questioning in American education.

MILESTONE CHART

(Cont.)

1958 P.L. 85-864, the National Defense Education Act, is passed to provide funds for educating potential scientists and area studies specialists. A nationwide "talent search" is initiated.

1970 P.L. 91-230, Section 806 of the Elementary and Secondary Education Act Amendments authorizes funds from Titles III and V to be made available to the gifted and talented.

1971 A comprehensive study of the education of the gifted and talented nationwide is launched by Commissioner of Education Sidney P. Marland.

1972 The so-called Marland Report, "The Education of the Gifted and Talented" is presented to the Congress. It specifies six areas of potential giftedness.

1974 P.L. 93-380, Title IV, Section 404, The Special Projects Act, provides the first categorical funding for gifted and talented education; $2.56 million is appropriated.

1978 P.L. 95-561, Title IX, Part A shifts the basic funding pattern away from the states and toward local education agencies; $3.78 million is appropriated.

APPENDIX B

Questions for Discussion

APPENDIX B

Questions for discussion relative to the gifted/talented:

1. What is the history of the gifted/talented movement?
2. What are the characteristics of the gifted/talented?
3. What problems do the gifted seem to have, if any?
4. How do you identify them?
5. What supporting personnel do they need?
6. What would you say is an exemplary program for the gifted/talented?
7. How do you work with these students?
8. What other human resources are necessary in addition to the facilitators?
9. Do you think that gifted/talented programs reach all of the eligible children? If not, explain.
10. What else could you tell me about these children that would be relevant to what they require?

APPENDIX C -- A Bibliography of

Materials on the Gifted/Talented

From the Idaho State
Resource Book of Gifted

"BOOKS NO TEACHER OF THE GIFTED/TALENTED SHOULD BE WITHOUT

Gallagher, James J., Teaching the Gifted Child, 2nd Ed., Boston: Allyn and Bacon, 1975.

This is the "bible" of gifted child education. If you own no other book in the field, you should own this one. It is comprehensive and authoritative.

Kaplan, Sandra N., Providing Programs for the Gifted and Talented, Reston, VA: The Council for Exceptional Children, 1976.

The very best all round source book on programming. It includes sections on starting up a program, various program models or "prototypes," curriculum design, how to develop a written program plan, and program preparation. Probably the most widely used practical handbook in the field.

Marland, Sidney P., Jr., Report to the Congress of the United States by the U.S. Commissioner of Education, Washington, D.C.: U.S. Office of Education, 1972.

Contains the data that provided the most recent "push" for the gifted/talented. An excellent (though by now dated) research summary, an extensive bibliography, and a well-reasoned defense of differentiated programming for the gifted/talented.

Martinson, Ruth A., Identification of the Gifted and Talented, Reston, VA: The Council for Exceptional Children, 1976.

This is the basic book on identification. Contains many checklists and charts, and compares different identification strategies. Presents the strongest argument for a multiple criteria approach.

Passow, A. Harry, The Gifted and Talented: Their Education and Development, 78th Yearbook of the National Society for the Study of Education, Chicago: National Society for the Study of Education, 1979.

Contains in one volume all the latest thinking of the leaders in various phases of gifted child education. Twenty-seven essays covering the whole field.

Renzulli, Joseph S., The Enrichment Triad Model: A Guide for Developing Defensible Programs for the Gifted and Talented, Willamantic, CT: Creative Learning Press, 1976.

One of the few original departures in concept regarding its rationale for educating the gifted/talented, and a rigorous defense of the differentiated program philosophy.

Torrance, E. Paul, Gifted Children in the Classroom, New York: Macmillan & Co., 1965.

One of the classics, if the word can be applied to a book less than 25 years old. Strong research base, as is all of Torrance's writing, but eminently applicable to the nitty-gritty of Monday morning.

BIBLIOGRAPHY: GIFTED AND TALENTED

Abraham, W. Common Sense about Gifted Children. Harper. 1958.

Amidon, Edmund and Elizabeth Hunter. Improving Teaching. Holt, Rinehart and Winston. 1966.

Anderson, H.H. (editor). Creativity and its Cultivation. Harper, 1959.
Creativity in Childhood and Adolescence. Science and Behavior Books, Palo Alto. 1965.

Axford, L.B. A Directory of Educational Programs for the Gifted. Scarecrow Press, Metuchen, N.J. 1971.

Barbe, Walter B. The Exceptional Child. New York: Center for Applied Research in Education. 1963.

Bishop, W.E. "Successful Teachers of the Gifted," Exceptional Children 34: 317-25, 1968.

Bloom, Benjamin et al. Taxonomy of Educational Objectives: Cognitive Domain. David McKay Company. 1956.

Burkhart, R.C. Spontaneous and Deliberate Ways of Learning. Scranton: International Textbook Company. 1962.

Caldwell, Edson. Group Techniques for the Classroom Teacher. Science Research Associates. 1960.

Corey, Gerald F. Teachers Can Make a Difference. Charles E. Merrill. 1973.

Cruickshank, William M. and G. Orville Johnson (editors). Education of Exceptional Children and Youth, second edition. Prentice-Hall Company. 1967.

Cutts, Norma E. and Nicholas Moseley. Teaching the Bright and Gifted. Englewood Cliffs, New Jersey. 1957.

DeHaan, Robert F. and Robert J. Havighurst. Educating Gifted Children. University of Chicago Press. 1961.

Dinkmeyer, D. and R. Dreikurs. Encouraging Children to Learn. Prentice-Hall Company. 1963.

Dreikurs, Rudolph. Maintaining Sanity in the Classroom. Harper & Row. 1971.

Durr, W.K. The Gifted Student. Oxford University Press. 1964

Everett, Samuel (editor). Programs for the Gifted: a Casebook in Secondary Education. Harper & Brothers. 1961.

Fliegler, Louis A. (editor). Curriculum Planning for the Gifted. Prentice-Hall. 1961.

Freehill, M. F. Gifted Children: Their Psychology and Education. Macmillan. 1961.

French, Joseph L. Educating the Gifted. Henry Holt and Company. 1966.

Gallagher, James J. Teaching the Gifted Child. Allyn and Bacon. 1964.
Teaching Gifted Students. Allyn and Bacon. 1968.

Gallagher, James J. et al. Productive Thinking of Gifted Children in Classroom Interaction. Council for Exceptional Children. 1967.

Getzels, J.W. and B.W. Jackson. Creativity and Intelligence. Wiley. 1962.

Ghiselin, B. (editor). The Creative Process. Mentor. 1955.

Gold, Milton J. Education of the Intellectually Gifted. Charles E. Merrill. 1965.

Gordon, Ira. Studying the Child in School. John Wiley and Sons. 1966.

Gowan, John C. Development of the Creative Individual. Robert R. Knapp Publishers. 1972.

Gowan, John C. and E. Paul Torrance. Educating the Ablest. Itaska, Illinois: F.E. Peacock Publishers. 1971.

Gruber, H.E., et al (editors). Contemporary Approaches to Creative Thinking. Atherton Press. 1962.

Guilford, John P. The Nature of Human Intelligence. McGraw-Hill. 1967.

Hall, T. Gifted Children: The Cleveland Story. World Publishing Co. 1956.

Henry, N.B. (editor). Education of the Gifted (Fifty-seventh Yearbook, National Society for the Study of Education). University of Chicago Press. 1958.

Havighurst, R. J., E. Stivers and R. F. DeHaan. Survey of the Education of Gifted Children. University of Chicago Press. 1955.

Hildreth, G. H. Introduction to the Gifted. McGraw-Hill. 1966.

Hollingworth, L. S. Gifted Children: Their Nature and Nurture. Macmillan. 1926.
Children who Tested Above 180 I.Q. Stanford-Binet: Origin and Development. World Book Company. 1942.

Hunter, Elizabeth. Encounter in the Classroom. Holt, Rinehart & Winston. 1972.

Jordan, Thomas E. The Exceptional Child. Charles E. Merrill. 1962.

Kagan, J. (editor). Creativity and Learning. Houghton Mifflin. 1967.

Kohl, Herbert R. The Open Classroom. Random House. 1969.

Lewis, Gertrude M. Educating the More Able Children in Grades Four, Five and Six. U.S. Department of Health, Education and Welfare, Office of Education Bulletin No.1, 1961.

Loomis, G. I. Survey of Literature and Research Concerning the Education of the Gifted Child. School of Education, University of Oregon. 1951.

Magar, Robert F. Developing Attitude Toward Learning. PaloAlto: Fearon Publishers. 1968.

Martinson, R. A. Curriculum Enrichment for the Gifted in the Primary Grades. Prentice-Hall. 1968.

May, Rollo. Man's Search for Himself. W.W. Norton. 1953.

Meeker, Mary N. The Structure of the Intellect. Charles E. Merrill. 1969.

Mooney, R.L. and T. A. Razik (editors). Explorations in Creativity. Harper & Row. 1967.

Operations Research, Inc. The Advocate Survey: A Survey of Experts in the Education of Gifted Children. Silver Springs: A LEASCO Company. 1971.

Parnes, S. J. and H.F. Harding. A Source Book for Creative Thinking. Scribner. 1962.

Patterson, Jo. Why Doesn't an Igloo Melt Inside? A Handbook for Teachers of the Academically Gifted and Talented. Memphis City School System, Tennessee. 1973. (non-commerical publication)

Pennsylvania State Department of Education. Mentally Gifted Children and Youth: A Guide for Parents. 1973.

Piaget, J. The Psychology of Intelligence. Routledge & Kegan Paul Publishers. 1951.
Language and Thought of the Child. Meridian Publishers. 1955.

Piaget, J. and B. Inhelder. Memory and Intelligence. Basic Books. 1973.

Pringle, M. L.K. Able Misfits: A Study of Educational and Behavior Difficulties of 103 Very Intelligent Children (I.Q.s 120-200). Longman, London, England. 1970.

Renzulli, Joseph S. New Directions in Creativity. Harper & Row. 1973. (three workbook s for teachers with duplication pages)

Renzulli, Joseph S. and Robert K. Hartman. "Scale for Rating Behavioral Characteristics of Superior Students," Exceptional Children Vol. 38, No. 3: 211-219, November 1971.

Reynolds, M.C. Early School Admission for Mentally Advanced Children. Council for Exceptional Children. 1962.

Rice, J.P. The Gifted: Developing Total Talent. Charles C. Thomas, Springfield, Illinois. 1970.

Rogers, Carl B. Freedom to Learn. Charles E. Merrill. 1969.

Sanders, Norris M. Classroom Questions: What Kinds? Harper & Row. 1966.

Schiefele, Marian. The Gifted Child in the Regular Classroom. Teachers College, Columbia University. 1953.

Schoenfield, C. "Toward a National Strategy for Environmental Education," Journal of Educational Research 64:1. 1970.

Shertzer, Bruce (editor). Working with Superior Students: Theories and Practices.

Smith, P. (editor). Creativity: An Examination of the Creative Process. Hastings House. 1959.

Stein, M. I. and S. J. Heinze. Creativity and the Individual. Free Press. 1960.

Sumption, M. R. Three Hundred Gifted Children. World Book Company. 1941.

Taylor, C. W. (editor) Creativity: Progress and Potential. McGraw-Hill. 1964.
Widening Horizons in Creativity. Wiley. 1964.

Taylor, C. W. and F. Baron. Scientific Creativity: Its Recognition and Development. Wiley. 1963.

Taylor, C.W. and F. E. Williams. Instructional Media and Creativity. Wiley. 1966.

Telford, Charles W. and James M. Sawrey. The Exceptional Individual. Prentice-Hall.

Tempest, N. R. Teaching Clever Children: 7-11. Routledge & Kegan Paul Publishers. 1974.

Terman, Lewis M. etal. Mental and Physical Traits of a Thousand Gifted Children. Stanford University Press. Vol. I. 1925.

Torrance, E. Paul. Talent and Education. University of Minnesota Press. 1960.
Guiding Creative Talent. Prentice-Hall. 1962.
Rewarding Creative Behavior. Prentice-Hall. 1965.
Gifted Children in the Classroom. Macmillan. 1967.

Vassar, William G. and Joseph S. Renzulli (editors). The Gifted Child in Education. Connecticut State Dept. of Education. 1970.

Vernon, P.E. (editor) Creativity: Selected Readings

Wallach M.A. and C. W. Wing Jr. The Talented Student. Holt, Rinehart & Winston. 1969.

Witty, Paul (editor). The Gifted Child. American Association for Gifted Children. Heath. 19 51.

BIBLIOGRAPHY A

EVALUATION: ISSUES, MODELS AND METHODS

Belasco, J. A., & Trice, H. M. *The Assessment of Change in Training and Therapy.* New York: McGraw-Hill, 1969.

Bolton, D. L. *Selection and Evaluation of Teachers.* Berkely, California: McCutchan, 1973.

Brown, F. G. *Measurement and Evaluation.* Itasca, Illinois: F. E. Peacock, 1971.

Caro, F. G. (Ed.) *Readings in Evaluation Research.* New York: Russell Sage Foundation, 1971.

Cook, D. L. *Program Evaluation and Review Techniques, Applications in Education.* U. S. Office of Educational Cooperative Research Monograph, No. 17, OE-12024. Washington D. C.: USDE,1966.

Dubois, P. H., & Mayo, D. G. (Eds.) *Research Strategies for Evaluating Training,* AERA Monograph Series on Curriculum Evaluation, No. 4. Chicago: Rand McNally, 1970.

Eash, M. *Issues in Evaluation and Accountability in Special Programs for Gifted and Talented Children.* Chicago Circle: University of Illinois, 1972.

Gottman, J. M., & Clasen, R. E. *Evaluation in Education: A Practitioner's Guide.* Itasca, Illinois: F. E. Peacock, 1972.

Grobman, H. *Evaluation Activities of Curriculum Projects: A Starting Point.* AERA Monograph Series on Curriculum Evaluation, No. 2. Chicago: Rand McNally, 1968.

Cronlund, N. E. (Ed.) *Readings in Measurement and Evaluation.* New York: MacMillan, 1968.

Hayes, S. P. *Measuring the Results of Development Projects.* UNESCO Monographs in the Applied Social Scienses, 1959.

Herzog, E. *Some Guidelines for Evaluation Research.* Washington: U. S. Government Printing Office, 1959.

House, E. R., Lapan, S., & Kerins, T. *A Preliminary Assessment of the Illinois Gifted Program.* Northfield, Illinois: Cooperative Educaticnal Research Laboratory, 1968.

Hyman, H., Hopkins, T., & Wright, C. *Applications of Methods of Evaluation.* Berkeley: University of California, 1962.

Kraft, R. H., Smith, L. M., Pohland, R. A., Brauner, C. J., & Gjerde, C. *Four Evaluation Examples: Anthropological, Economic, Narrative, and Portrayal.* AERA Monograph Series on Curriculum Evaluation, No. 7 Chicago: Rand McNally, 1974.

Lien, A. J. *Measurement and Evaluation of Learning.* Dubuque, Iowa: William C. Brown, 1971.

Lindvall, C. M., & Cox, R. C. *Evaluation as a Tool in Curriculum Development: The IPI Evaluation Program.* AERA Monograph Series on Curriculum Evaluation, No. 5. Chicago: Rand McNally, 1970.

Mager, R. F. *Preparing Instructional Objectives.* Palo Alto, California: Fearon Press, 1962.

Phi Delta Kappa Commission on Evaluation. *Educational Evaluation and Decision Making.* Itasca, Illinois: Peacock, 1971.

Popham, W. J. *An Evaluation Guidebook.* Los Angeles, California: The Instructional Objectives Exchange, 1972.

Popham, W. J., & Baker, E. L. *Establishing Instructional Goals.* Englewood Cliffs, N. J. Prentice-Hall, 1970.

Popham, W. J., Eisner, E. W., Sullivan, H. J., & Tyler, L. L. *Instructional Objectives.* AERA Monograph Series on Curriculum Evaluation, No. 3. Chicago: Rand McNally, 1969.

Renzulli, J. S., & Ward, V. S. *Diagnostic and Evaluative Scales for Differential Education for the Gifted.* Storrs: University of Connecticut, 1969.

Rossi, P. H., & Williams, W. *Evaluating Social Programs.* New York: Seminar Press, 1972.

Sawin, E. I. *Evaluation and the Work of the Teacher.* Belmont, California: Wadsworth, 1969.

Scriven, M. *Perspectives of Curriculum Evaluation.* AERA Monograph Series on Curriculum Evaluation, No. 1. Chicago: Rand McNally, 1967.

Sjogren, D. *Training Materials for Gifted Evaluation Institute.* Northfield, Illinois: Cooperative Educational Research Laboratory, 1968.

Steele, J. M. *Dimensions of the Class Activities.* Center for Instructional Research and Curriculum Evaluation. Urbana: University of Illinois, 1969.

Stufflebeam, D. L., Foley, W. J., Gephart, W. J., Guba, E. G., Hammond, R. L., Merriman, H. O., & Provus, M. M. *Educational Evaluation and Decision Making in Education.* Itasca, Illinois: Peacock, 1971.

Suchman, E. *Evaluative Research.* New York: Russell Sage Foundation, 1967.

Thomdike, R. L., & Hagan, E. *Measurement and Evaluation in Psychology and Education.* New York: Wiley, 1969.

Tyler, R. W. (Ed.), *Educational Evaluation: New Roles, New Means.* The 68th Yearbook of the National Society for the Study of Education, Part II. Chicago: National Society for the Study of Education, 1969.

Whaley, J., Scanton, J., Duffy, H., Fukumoto, J., & Vogt, L. *Federal Evaluation Policy.* Washington D. C.: The Urban Institute, 1970.

Wick, J. W., & Beggs, D. L. *Evaluation for Decision Making in the Schools.* Boston: Houghton Mifflin, 1971.

Wilhelms, F. T. (Ed.) *Evaluation as Feedback and Guide.* Washington, D. C.: National Educational Association, Association for Supervision and Curriculum Development, 1967.

Witrock, M. C., & Wiley, D. E. (Eds.) *The Evaluation of Instructional Issues and Problems.* New York: Holt, Rinehart & Winston, 1970.

BIBLIOGRAPHY B

INSTRUMENT SOURCE BOOKS

Beatty, W. H. (Ed.) *Improving Educational Assessment and an Inventory of Affective Behavior.* Washington, D. C.: Association for Supervision and Curriculum Developrnent, N. E. A., 1969.

Bonjean, C. M., Hill, R. J., & McLemore, S. D. *Sociological Measurement: An Inventory of Scales and Indices.* San Francisco, California: Chandler, 1967.

Compilation of sources and descriptions of scales that are available to measure social phenomena. Extensive bibliographies are provided to guide the researcher to measures in such areas as Achievement, Authoritarianism, Leadership and Political Attitudes.

Buros, O. K. *Mental Measurements Yearbooks.* Highland Park, N. J.: Gryphon Press, 1938, 1940, 1949, 1953, 1959, 1965, 1972.

Definitive source for locating and evaluating tests and books on testing published in English-speaking countries. For each test, the following information is generally provided: Title, description of the groups for which the test is intended, date of copyright or publication, reliability and validity, cost, time and author. Test reviews are included as are extensive bibliographies of verified references on the construction, use and validity of specific tests.

Buros, O. K. (Ed.) *Personality Tests and Reviews.* Highland Park, N. J.: Gryphon Press, 1970.

This volume includes original test reviews, excerpted test reviews and specific test bibliographies on personality tests found in the first six *Mental Measurements Yearbooks.* In addition, the following new materials on personality testing are included: a bibliography of 513 personality tests, separate author indexes for all tests having 25 or more references and a scaling index to all personality tests in the volume.

Buros, O. K. (Ed.) *Tests in Print.* Highland Park, N. J.: Gryphon Press, 1961.

Comprehensive bibliography of titles and basic information on all tests published in English-speaking countries. The information provided on each test includes: print status, the number of reviews it received, the names of reviewers, the number of references on its construction, use and validity, and the number of excerpts reprinted from reviews in journals. This book serves as an index to the first five *Mental Measurements Yearbooks.*

Buros, O. K. (Ed:) *New Tests in Print II.* Highland Park, N. J.: Gryphon Press, 1974.

This edition has been updated and expanded to include specific test bibliographies for all tests in print.

Coller, A. R. *Self-Concept Measures: An Annotated Bibliography.* Princeton, N. J.: Head Start Test Collection, Educational Testing Service, 1971.

Haenn, J. F., Johnson, T. J., & Owoc, P. *Tests and Measurements for Early Childhood Education Programs.* Chicago, Illinois: National Program on Early Childhood Education, Central Midwestern Regional Educational Laboratory, 1972.

House, E. R. (Ed.) *TAG Evaluaton Sampler.* Urbana: Center for Instructional Research and Curriculum Evaluation, University of Illinois.

Contains two single instruments, *The Classroom Report* (R. Stake) and the *Class Activities Questionnaire* (J. Steele), and two broader evaluaton plans, *A Sample Evaluation Plan* (D. Sjogren) and *DESDEG* (V. Ward and J. Renzulli).

Johnson, O. G., & Bommarito, J. W. *Tests and Measurements in Child Development: A Handbook.* San Francisco, California: Jossey-Bass, 1971.

Compilation of over 300 measures of child behavior and development not commercially available. Scales are classified according to the following categories: cognition; personality and emotional characteristics; children's perceptions of environment;

self-concept; characteristics of environment, motor skills, brain injury, sensory perception; physical attributes; attitudes and interests not otherwise classified; social behavior and measures that do not fit any of the above categories. The information provided for each measure includes: name of measure, author, age of children, variable, type of measure, source from which the measure may be obtained, description of measure, reliability and validity, and bibliography.

Johnson, T., & Hess, R. J. *Tests in the Arts.* St. Ann, Missouri: Central Midwestern Regional Educational Laboratory, 1970.

Index of instruments that measure abilities in the following areas of the Arts; art, dance, drama, films, literature, music and creativity. The following information is provided on each entry: title, author, key words, sources, category and resume (item, scoring, validity, reliability). A taxonomy for each domain is included which classifies instruments according to what they measure and what specific method is used to measure them.

Robinson, J. P., Athanasiou, R., & Head, K. B. *Measures of Occupational Attitudes and Occupational Characteristics.* Ann Arbor: University of Michigan Institute of Social Research, 1969.

Review and evaluation of 77 scales measuring variables related to a person's occupation. Scales are grouped into the following categories: general job satisfaction scales; job satisfaction with specific job features; concepts related to job satisfaction; occupational values; leadership styles, other work-relevant attitudes; vocational interest measures and occupational status measures. Other topics included in this volume are: research on work and workers in the U. S.; a summary of survey research evidence on occupational norms and differences in job satisfaction; a review of literature on job attitudes and occupational performance; occupational situs; steps for measuring social mobility and occupational similarity.

Robinson, J. P., & Shaver, P. R. *Measures of Social Psychological Attitudes.* Ann Arbor: University of Michigan, Institute of Social Research, 1970.

Listing and evaluation of 106 measures of social attitude variables. The scales that are included were grouped into the following categories: alienation and anomie; authoritarianism, dogmatism and related measures; other socio-political attitudes; values; general attitude toward people; religious attitudes and methodological scales. The criteria for scale construction which were used to evaluate the scales were: (1) item construction criteria, (2) response-set criteria and (3) psychometric criteria.

Shaw, M., & Wright, J. M. *Scales for the Measurement of Attitudes.* New York: McGraw-Hill, 1971.

Compilation of scales that measure attitudes toward social practices, social issues and problems, international issues, abstract concepts, political and religious systems, ethnic and national groups, significant others and social institutions. Chapters are included that consider the general nature of attitudes and methods of measurement and evaluation and suggestions for improvement of scales.

Simon, A., & Boyer, E. G. (Eds.) *Mirrors for Behavior III: An Anthology of Observation Instruments.* Wyncote, Pennslyvania: Communication Materials Center, 1974.

Compilation of 99 observation instruments, most of which deal with "learning" environments. The systems were grouped into seven major classes: affective, cognitive, psychomotor, activity, content, sociological structure and physical environment. Chapters are included which discuss the technology of observation instruments and present and future applications of observation instruments. Also included is an extensive bibliography which references research reports, user manuals, theoretical papers and reports of training projects.

Test Collection Bulletin. Princeton, New Jersey: Educational Testing Service.

This is a quarterly publication describing standardized tests and other measurement devices. It includes publishers' catalogs, information on testing programs and scoring services, test reviews, reference materials on measurement and evaluation and the address of the publisher or organization where each test can be secured.

Walker, D. K. *Socioemotional Measures for Preschool and Kindergarten Children.* San Francisco, California: Jossey-Bass, 1973.

Guide to 143 socioemotional measures available for use with children aged three to six years. The scales are classified into six area: Attitudes; General personality and emotional adjustment; Interests or preferences; Personality or behavior traits; Self-concept; and Social skills or competencies. Descriptions of each measure include: title and date of publication or copyright; author; appropriate age range? measurement technique, sources in which the measure is described; addresses from which the measure can be obtained; a description of the instrument; norms available and validity and reliability evidence.

BIBLOGRAPHY C

INSTRUMENT CONSTRUCTION

Adkins, D. C. *Construction and Analysis of Achievement Tests.* Washington: U. S. Civil Service Commission, 1947.

Bloom, B. S., Engelhart, M. D., Furst, E. J., Hill, N. H., & Krathwohl, D. R. *Taxonomy of Educational Objectives, Handbook I: Cognitive Domain.* New York: David McKay, 1956.

Bloom, B. S., Hastings, J. T., & Madaus, G. F. (Eds.) *Handbook on Formative and Summative Evaluation of Student Learning.* New York: McGraw-Hill, 1971.

Dressel, P. L., & Mayhew, L. B. *Handbook for Theme Analysis.* Dubuque, Iowa: William C. Brown, 1954.

Educational Testing Service. *ETS Builds a Test.* Princeton, N. J.: Educational Testing Service, 1959.

Edwards, A. L. *Techniques of Attitude Scale Construction.* New York: Appleton-Century-Crofts, 1957.

Furst, E. J. *Constructing Evaluation Instruments.* New York: McKay, 1958.

Gardner, E. F., & Thompson, G. G. *Syracuse Scales of Social Relations.* New York: Harcourt, Brace and World, 1958.

Gerberich, J. R. *Specimen Objective Test Items: A Guide to Achievement Test Construction.* New York: Longmans, Green, 1959.

Gronlund, N. E. *Sociometry in the Classroom.* New York: Harper, 1959.

Hyman, H. *Survey Design and Analysis.* New York: The Free Press, 1955.

Krathwohl, D. R., Bloom, B. S., & Masia, B. B. *Taxonomy of Educational Objectives, Handbook II: Affective Domain.* New York: McKay, 1964.

Maranell, G. M. (Ed.) *Scaling: A Sourcebook for Behavioral Scientists.* Chicago: Aldine, 1974.

Oppenheim, A. N. *Questionnaire Design and Attitude Measurement.* New York: Basic Books, 1966.

Osgood, C. E. *The Measurement of Meaning.* Urbana, Illinois: University of Illinois, 1957.

Payne, D. A. *The Specification and Measurement of Learning Outcomes.* Waltham, Mass.: Blaisdell, 1968.

Rosenberg, M. *The Logic of Survey Analysis.* New York: Basic Books, 1968.

Torgerson, W. S. *Theory and Methods of Scaling.* New York: Wiley, 1958.

Webb, E. J., Cambell, D. T., Schevartz, R. D., & Sechrest, L. *Unobtrusive Measures: Nonreactive Research in the Social Sciences.* Chicago: Rand McNally, 1966.

Wood, D. A. *Test Construction: Development and Interpretation of Achievement Tests.* Columbus, Ohio: Charles E. Merrill, 1960.

BIBLIOGRAPHY D

MEASUREMENT, STATISTICS AND RESEARCH DESIGN

Anastasi, A. *Psychological Testing* (3rd ed.) New York: MacMillan, 1968.

Campbell, D. T., & Stanley, J. C. *Experimental and Quasi-Experimental Designs for Research.* Chicago: Rand McNally, 1967.

Cronbach, L. J. *Essentials of Psychological Testing.* (3rd ed.) New York: Harper & Row, 1970.

Ebel, R. L. *Measuring Educational Achievement.* Englewood Cliffs, New Jersey: Prentice-Hall, 1965.

Gage, N. L. (Ed.) *Handbook of Research on Teaching.* Chicago: Rand McNally, 1963.

Garrett, H. E. *Statistics in Psychology and Education* New York: David McKay Co., 1958.

Glass, G. V., & Stanley, J. C. *Statistical Methods in Education and Psychology.* Englewood Cliffs, New Jersey: Prentice-Hall, 1970.

Harris, C. W. *Problems in Measuring Change.* Madison: University of Wisconsin, 1963.

Lindquist, E. F. *Design and Analysis of Experiments in Psychology and Education.* Boston: Houghton Mifflin, 1953.

Markle, S. M. *Empirical Testing of Programs.* Sixty-Sixth Yearbook of the National Society for the Study of Education, Part II, 1967.

Mehrens, W. A., & Elk, R. E. *Principles of Educational and Psychological Measurement.* Chicago, Illinois: Rand McNally, 1967.

Miller, D. C. *Handbook of Research Design and Social Measurement.* New York: David McKay, 1964.

Nunnally, J. C., Jr. *Tests and Measurements: Assessment and Prediction.* New York: McGraw-Hill, 1959.

Payne, D. A., & McMorris, R. F. *Educational and Psychological Measurement* (2nd ed.) Waltham, Mass.: Blaisdell, 1975.

Popham, W. J. & Sirotnik, K. A. *Educational Statistics: Use and Interpretation* (2nd ed.) New York: Harper & Row, 1973.

Rabin, A. I. (Ed.) *Projective Techniques in Personality Assessment: A Modern Introduction.* New York: Springer, 1968.

Smith, E. R., & Tyler, R. W. *Appraising and Recording Student Progress.* New York: Harper & Row, 1942.

Thorndike, R. L. *Educational Measurement* (2nd Ed.) Washington, D. C.: American Council on Education, 1971.

Thorndike, R. L. & Hagen, E. *Measurement and Evaluation in Psychology and Education* (3rd ed.) New York: John Wiley, 1969

Tyler, R. W., & Wolf, R. M. *Crucial Issues in Testing.* Berkeley, California: McCutchan, 1974.

Zytowski, D. G. *Contemporary Approaches to Interest Measurement.* Minneapolis, Minnesota: University of Minnesota Press, 1973.

GIFTED AND TALENTED BIBLIOGRAPHY *

Abraham, W. Common Sense About Gifted Children. New York: Harper and Bros., 1958.

Adams, James L. Conceptual Blockbusting: A Pleasurable Guide to Better Problem Solving. New York: W. W. Norton and Co., 1974.

Anastasi, Anne. Psychological Testing. 4th ed. New York: Macmillan, 1976.

Assagioli, Roberto. "The Education of Gifted and Super-Gifted Children." New York: Psychosynthesis Foundation, 1960.

Biondi, A. and Parnes, S. Assessing Creative Growth. Vols. 1 and 2. Great Neck, N.Y.: Creative Synergetic Association, 1976.

Bishop, W. E. "Characteristics of Teachers Judged Successful by Intellectually Gifted, High-Achieving High School Students." In W. B. Barbe and J.S. Renzulli, eds., Psychology and Education of the Gifted. 2d ed. New York: Irvington Publishers, 1975.

Bloom, B. S. , ed. Taxonomy of Educational Objectives. Handbook 1: Cognitive Domain. New York: David McKay, 1956.

Boston, Bruce O. A Resource Manual of Information on Educating the Gifted and Talented. Reston, Va.: Council for Exceptional Children, 1975.

_____, ed. Gifted and Talented: Developing Elementary and Secondary School Programs. Reston, Va: Council for Exceptional Children, 1975.

_____. The Sorcerer's Apprentice: A Case Study in the Role of the Mentor. Reston, Va: Council for Exceptional Children, 1976.

Buros, Oscar K., ed. Tests in Print II. Highland Park, N.J.: Gryphon Press, 1974.

_____. Mental Measurements Yearbook. Highland Park, N.J.: Gryphon Press, 1978.

Callahan. Carolyn M. Developing Creativity in the Gifted and Talented. Reston, Va .: Council for Exceptional Children, 1978.

Clark, Barbara. Growing Up Gifted. Columbus, Ohio: Charles E. Merrill Publishing Co., 1979.

* This list of suggested references is taken from two publications: 1) Characteristic and Identification of Gifted and Talented Students, and 2) Program Design and Development for Gifted and Talented Students by Frederick B. Tuttle, Jr. and Laurence A. Becker, the National Education Association, 1201 16th Street N. W. Washington, D. C. 20036 Publication date expected, early 1980.

Deakin, Michael. The Children on the Hill. London: Quartet Books, 1972.

DeBono, Edward. Children Solve Problems. New York: Harper and Row, 1974.

DeHaan, R., and Havighurst, R. J. Educating Gifted Children. Chicago: University of Chicago Press, 1957.

Feldhusen, J., and Treffinger, D. Teaching Creative Thinking and Problem Solving. Dubuque, Iowa: Kendall-Hunt Publishing Co., 1976.

Gallagher, J. J. Teaching the Gifted Child. Boston: Allyn and Bacon, 1975.

_____. Research Summary on Gifted Child Education. Springfield, Ill.: Office of the Superintendent of Public Instruction, 1966.

_____; Ashner, Mary Jane; and Jenne, William. Productive Thinking of Gifted Children in Classroom Interaction. Reston, Va.; Council for Exceptional Children, 1967.

Gartner, Alan, and Riessman, Frank. How To Individualize Learning. Bloomington, Ind.: Phi Delta Kappa Educational Foundation, 1977.

Ginsberg, Gina, and Harrison, Charles. How To Help Your Gifted Child. New York; Monarch Press, 1970.

Gold, Milton. Education of the Intellectually Gifted. Columbus, Ohio: Charles E. Merrill, 1965.

Gowan, John and Bruch, Catherine. The Academically Talented Student and Guidance. Boston: Houghton Mifflin Co., 1971.

_____, ; Khatena, J.; and Torrance, E. P., eds. Educating the Ablest. Itsasca, Ill.: F. E. Peacock Publishing, Inc., 1979.

Guilford, J. P. Intelligence, Creativity, and Their Educational Implications. San Diego, Calif.: Robert Knapp, 1968.

Hunkins, Francis P. Involving Students in Questioning. Boston: Allyn and Bacon, 1976.

Johnson, Orval G. Tests and Measurement in Child Development: Handbook II. Vols. 1 and 2. San Francisco: Jossey-Bass, 1976.

Kaplan, Sandra. Providing Programs for the Gifted and Talented: A Handbook. Reston, Va.: Council for Exceptional Children, 1975.

Kaufmann, Felice. Your Gifted Child and You. Reston, Va.: Council for Exceptional Children, 1976.

Kerlinger, Fred N. Foundations of Behavioral Research. New York: Holt, Rinehart, and Winston, 1973.

Krathwohl, D. R.; Bloom, B.S.; and Masia, B. B. Taxonomy of Educational Objectives. Handbook 2: Affective Domain. New York: David McKay, 1964.

Labuda, Michael, ed. Creative Reading for Gifted Learners: A Design for Excellence. Newark, Del.: International Reading Association, 1974.

Lyon, H. "Education of the Gifted and Talented." Exceptional Children 43, No. 3 (1976): 166-67.

Macrorie, Ken. "A Room with Class." Media and Methods 14, No. 5, January 1978.

Maker, C. June. Providing Programs for the Gifted Handicapped. Reston, Va.:Council for Exceptional Children, 1977.

_____. Training Teachers for the Gifted and Talented: A Comparison of Models. Reston, Va.:Council for Exceptional Children, 1975.

Martinson, R. A. "Research on the Gifted and Talented: Its Implication for Education." In Education of the Gifted and Talented: Report to the Congress of the United States by the U.S. Commissioner of Education. Washington, D. C.: Government Printing Office, 1972.

_____, and Seagoe, May V. The Abilities of Young Children. Reston, Va.: Council for Exceptional Children, 1967.

_____. The Identification of the Gifted and Talented. Ventura, Calif,: Office of the Ventura County Superintendent of Schools, 1974.

Meeker, M. Advance Teaching Judgments, Planning and Decision Making. El Segundo, Calif., SOI Institute, 1976.

_____. A Beginner's Reader About Guilford's Structure of the Intellect. El Segundo, Calif.: SOI Institute, 1974.

Mirman, N. "Teacher Qualifications for Educating the Gifted." Gifted Child Quarterly 8, No. 3 (1964): 123-26.

Nolte, Jane. "Nearly...Everything You've Always Wanted To Know About the Gifted and Talented." Wauwatosa, Wisconsin Council for the Gifted and Talented, 1976.

Pearce, Joseph C. Magical Child. New York: Dutton, 1977.

Ray, J. Turning On Bright Minds. Houston: Prologues, 1977.

Renzulli, Joseph S. The Enrichment Triad Model. Mansfield Center, Conn.: Creative Learning Press, 1977.

_____, and Smith, Linda H. A Guidebook for Developing Individualized Educational Programs (IEP) for Gifted and Talented Students. Mansfield Center, Conn.; Creative Learning Press. 1977.

_____. A Guidebook for Evaluating Programs for the Gifted and Talented. Reston, Va.: Council for Exceptional Children, 1975.

Sanders, Norris M. Classroom Questions, What Kinds? New York: Harper and Row, 1966

Stanley, Julian C.; Keating, D. P.; and Fox, L. Mathematical Talent: Discovery, Description, and Development. Baltimore: Johns Hopkins Press, 1974.

Star Power: Providing for the Gifted and Talented. Instructional Services, Region 13 Education Service Center, 7703 North Lamar, Austin, Texas 78752.

Syphers, Dorothy F. Gifted and Talented Children: Practical Programming for Teachers and Principals. Reston, Va.: Council for Exceptional Children, 1972.

Torrance, Ellis. Guiding Creative Talent. New York: Drieger, 1976.

_____. Discovery and Nurturance of Giftedness in the Culturally Different. Reston, Va.: Council for Exceptional Children, 1977.

Treffinger, Donald J., and Curl, Clifford D. Self-Directed Study Guide on the Education of the Gifted and Talented. Ventura, Calif.: Ventura County Superintendent of Schools, 1976.

Tuckman, Bruce Wayne. Evaluating Instructional Programs. Rockleigh, N.J.: Allyn and Bacon, 1979.

Tuttle, Frederick B., Jr. Gifted and Talented Students. Washington, D. C.: National Education Association, 1978.

Williams, Frank E. A Total Creativity Program for Individualizing and Humanizing the Learning Process. Englewood Cliffs, N.J.: Educational Technology Publications, 1972.

Media

Sit Down, Shut Up, or Get Out (film)
Broadcasting and Film Commission
c/o National Council of Churches
475 Riverside Drive
New York, NY 10027

Understanding the Gifted (film)
Churchill Films
662 North Robertson Boulevard
Los Angeles, CA 90069

More Than a Glance (film)
Who Is the Gifted Child? (filmstrip)
Audiovisual Services
Ventura County Superintendent of Schools
County Office Building
353 East Main Street
Ventura, CA 93001

Art and Multi-Sensory Experience (filmstrip series)
Educational Frontiers Associates
Avenel, NJ 07001

Who Are These People? (film)
Scott Anderson Productions
Reston, VA 22091

Simple Gifts (videotapes)
University of Wisconsin Telecommunications Center
WHA-TV
Madison, WI 53706

Talks with Teachers About Gifted and Talented Students:
Characteristics
Identification
Parents of the Gifted and Talented: A Teacher's View
A Parent's View of Gifted and Talented Children
Initiating a Program
Teacher Selection
Training
Funding
(Audiotapes)
National Education Association
1201 16th Street, N. W.
Washington, D. C. 20036

Periodicals

G/C/T
Box 66654
Mobile, AL 36606

Gifted Child Quarterly
National Association for Gifted Children
217 Gregory Drive
Hot Springs, AR 71901

Exceptional Children
Council for Exceptional Children
1920 Association Drive
Reston, VA 22091

National/ State Leadership Training Institute on the Gifted and Talented Bulletin
Civic Center Tower Building
316 West Second Street, Suite PH-C
Los Angeles, CA 90012

Education Unlimited
1834 Meetinghouse Road
Boothwyn, PA 19061

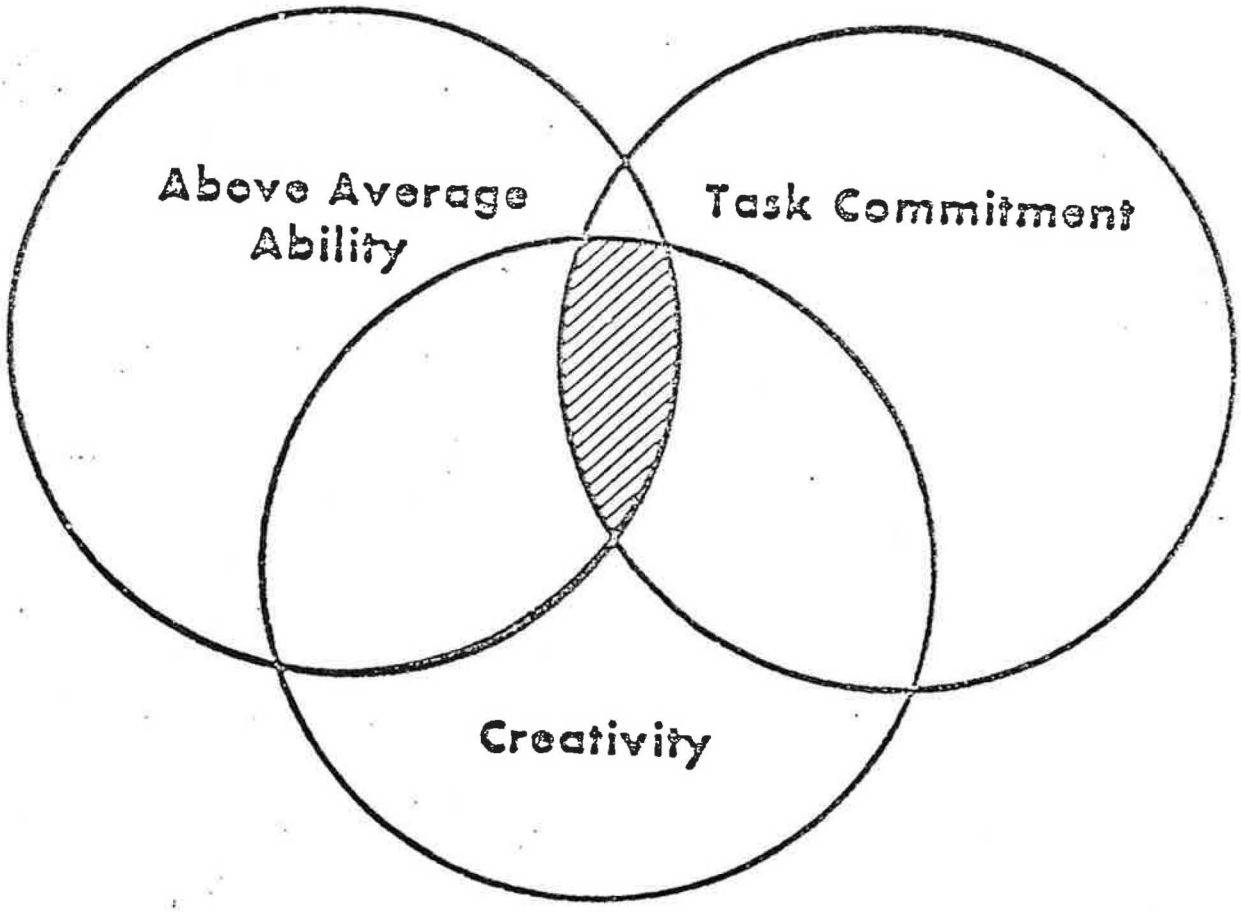
Dromenon
Box 2244
New York, NY 10011

APPENDIX D -- Descriptions of Programs

1. Renzulli's Triad Model
2. John Feldhusen's Three-Stage Model
3. Mary Meeker's SOI Model
4. Calvin Taylor's Talents Unlimited

1. RENZULLI'S TRIAD MODEL

J.S. Renzulli
University of Connecticut


Above Average Ability
Task Commitment
Creativity

Creativity

Major Purposes: To spot Action Information that can be used for making decisions about when a child should be revolved into the special program

To add to the collection of Status Information for future decision making related to (a) entrance into the Talent Pool, and (b) being revolved into the special program

To provide information that can be used for individualized programming

Major Responsibility for Spotting Action Information: Regular Classroom Teachers, Counselors (and Special Program Personnel if they interact with Talent Pool students in Type I or II Enrichment situations)

FAMILIES OF INFORMATION

INFORMATION

Psychometric	Developmental	Performance	Sociometric
Creativity Tests	Teacher Ratings Parent Ratings Self-Ratings	Extremely creative reactions to a particular curriculum topic, Type I or II Experience, event, personal experience, extra curricular activity Highly original suggestion for "doing something", producing a show or event, developing an unusual product or performance Highly creative examples of work already completed	Peer Ratings Verbal Comments by Peers

CLUSTER: Above Average Ability

Major Purpose: To gather and record Status Information (quickly and efficiently) that can be used in the formation of the Talent Pool

To provide information that can be used as the basis for individualized programming

Major Responsibility for Organizing the Information Gathering Effort:

Program Coordinator (with input from classroom teachers, special program teachers, pupil personnel specialists, parents, peers, and the students themselves)

FAMILIES OF INFORMATION

SOURCES OF INFORMATION

Psychometric	Developmental	Performance	Sociometric
Intelligence Tests	Teacher Ratings	Grades and Grade Point Averages	Peer Ratings
Achievement Tests	Parent Ratings	Anecdotal Reports About and/or Examples of Work Completed (both in connection with school and independent of the school)	
Tests of Aptitude and Special Abilities	Self-Ratings		
- Creativity			
- Critical Thinking			
- Mechanical Aptitude			
- Nonverbal Reasoning			
- Etc.			

CLUSTER: Task Commitment

Major Purpose: To spot Action Information that can be used for making decisions about when a child should be revolved into the special program

To add to the collection of Status Information for future decision making related to (a) entrance into the Talent Pool, and (b) being revolved into the special program

To provide information that can be used for individualized programming

Major Responsibility for Spotting Action Information:

Regular Classroom Teachers, Counselors (and Special Program Personnel if they interact with Talent Pool students in Type I or II Enrichment situations)

FAMILIES OF INFORMATION

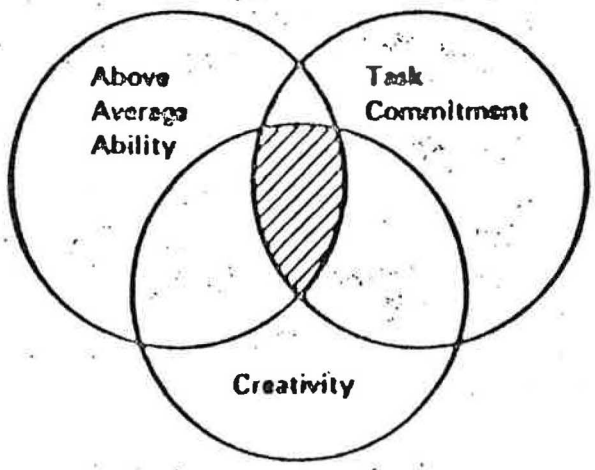
SOURCES OF INFORMATION	Psychometric	Developmental	Performance	Sociometric
	None	Teacher Ratings	Verbal expressions of extreme interest in a particular topic or area of study	Peer Ratings
		Parent Ratings		Verbal Comments by Peers
		Self-Ratings	An eagerness to "do more" in connection with a regular curriculum topic, Type I or II Experience, extra curricular activity or event, newspaper article	
			Signs of "positive addiction" to a topic, talent area, particular instrument, type of music, social issues, author	
			[Note: The above may be communicated among staff members verbally or in brief written anecdotes]	

Figure 3.

Graphic Representation of the Definition of Giftedness.

GENERAL PERFORMANCE AREAS

Mathematics	Visual Arts	Physical Sciences	
Philosophy	Social Sciences	Law	Religion
Language Arts	Music	Life Sciences	Movement Arts



SPECIFIC PERFORMANCE AREAS

Cartooning	Astronomy	Public Opinion Polling				
Jewelry Design	Map Making	Choreography	Biography			
Film Making	Statistics	Local History	Electronics			
Musical Composition	Landscape Architecture					
Chemistry	Demography	Microphotography				
City Planning	Pollution Control	Poetry				
Fashion Design	Weaving	Play Writing				
Advertising	Costume Design	Meteorology				
Puppetry	Marketing	Game Design	Journalism			
Electronic Music	Child Care	Consumer Protection				
Cooking	Ornithology	Furniture Design	Navigation			
Genealogy	Sculpture	Wildlife Management	Set Design			
Agricultural Research	Animal Learning	Film Criticism				
Etc.	Etc.	Etc.	Etc.	Etc.	Etc.	Etc.

*This arrow should be read as "...brought to bear upon..."

Summary Sheet

Scales for the Rating Behavioral Characteristics of Superior Students

Joseph S. Renzulli / Linda H. Smith / Alan J. White / Carolyn M. Callahan / Robert K. Hartman

Name _____ Date _____

School _____ Grade _____ Age _____

Teacher or person completing this form _____

How long have you known the child? _____ Months.

Directions. These scales are designed to obtain teacher estimates of a student's characteristics in the areas of learning, motivation, creativity, leadership, art, music, drama, communication and planning. The items are derived from the research literature dealing with characteristics of gifted and creative persons. It should be pointed out that a considerable amount of individual differences can be found within this population; and therefore, the profiles are likely to vary a great deal. Each item in the scales should be considered separately and should reflect the degree to which you have observed the presence or absence of each characteristic. Since the 10 dimensions of the instrument represent relatively different sets of behaviors, the scores obtained from the separate scales should not be summed to yield a total score. Please read the statements carefully and place an X in the appropriate place according to the following scale of values:

1. If you have seldom or never observed this characteristic.
2. If you have observed this characteristic occasionally.
3. If you have observed this characteristic to a considerable degree.
4. If you have observed this characteristic almost all of the time.

Space has been provided following each item for your comments.

Scoring. Separate scores for each of the ten dimensions may be obtained as follows:

— Add the total number of X's in each column to obtain the "Column Total."
— Multiply the Column Total by the "Weight" for each column to obtain the "Weighted Column Total."
— Sum the Weighted Column Totals across to obtain the "Score" for each dimension of the scale.
— Enter the Scores below:

I Learning Characteristics ..... _____
II Motivational Characteristics ..... _____
III Creativity Characteristics ..... _____
IV Leadership Characteristics ..... _____
V Artistic Characteristics ..... _____
VI Musical Characteristics ..... _____
VII Dramatics Characteristics ..... _____
VIII Communication Characteristics — Precision ..... _____
IX Communication Characteristics — Expressiveness ..... _____
X Planning Characteristics ..... _____

Scales for the Rating Behavioral Characteristics of Superior Students

Joseph S. Renzulli / Linda H. Smith / Alan J. White / Carolyn M. Callahan / Robert K. Hartman

Name _____ Date _____

School _____ Grade _____ Age _____

Teacher or person completing this form _____

How long have you known the child? _____ Months.

Part II: Motivational Characteristics

	1 Seldom or never	2 Occasionally	3 Considerably	4 Almost always
1. Becomes absorbed and truly involved in certain topics or problems; is persistent in seeking task completion. (It is sometimes difficult to get him to move on to another topic.)	☐	☐	☐	☐
2. Is easily bored with routine tasks.	☐	☐	☐	☐
3. Needs little external motivation to follow through in work that initially excites him.	☐	☐	☐	☐
4. Strives toward perfection; is self critical; is not easily satisfied with his own speed or products.	☐	☐	☐	☐
5. Prefers to work independently; requires little direction from teachers.	☐	☐	☐	☐
6. Is interested in many "adult" problems such as religion, politics, sex, race — more than usual for age level.	☐	☐	☐	☐
7. Often is self assertive (sometimes even aggressive); stubborn in his beliefs.	☐	☐	☐	☐
8. Likes to organize and bring structure to things, people, and situations.	☐	☐	☐	☐
9. Is quite concerned with right and wrong, good and bad; often evaluates and passes judgment on events, people, and things.	☐	☐	☐	☐
Add Column Total	☐	☐	☐	☐
Multiply by Weight	1	2	3	4
Add Weighted Column Totals	☐ >	☐ >	☐ >	☐
Total				☐

Scales for the Rating Behavioral Characteristics of Superior Students

Joseph S. Renzulli / Linda H. Smith / Alan J. White / Carolyn M. Callahan / Robert K. Hartman

Name _____ Date _____

School _____ Grade _____ Age _____

Teacher or person completing this form _____

How long have you known the child? _____ Months.

Part III: Creativity Characteristics

	_ Seldom or never	_ Occasionally	_ Considerably	_ Almost always
1. Displays a great deal of curiosity about many things; is constantly asking questions about anything and everything.	☐	☐	☐	☐
2. Generates a large number of ideas or solutions to problems and questions; often offers unusual ("way out"), unique, clever responses.	☐	☐	☐	☐
3. Is uninhibited in expressions of opinion; is sometimes radical and spirited in disagreement; is tenacious.	☐	☐	☐	☐
4. Is a high risk taker; is adventurous and speculative.	☐	☐	☐	☐
5. Displays a good deal of intellectual playfulness; fantasizes; imagines ("I wonder what would happen if . . ."); manipulates ideas (i.e., changes, elaborates upon them); is often concerned with adapting, improving and modifying institutions, objects, and systems.	☐	☐	☐	☐
6. Displays a keep sense of humor and sees humor in situations that may not appear to be humorous to others.	☐	☐	☐	☐
7. Is unusually aware of his impulses and more open to the irrational in himself (freer expression of feminine interest for boys, greater than usual amount of independence for girls); shows emotional sensitivity.	☐	☐	☐	☐
8. Is sensitive to beauty; attends to aesthetic characteristics of things.	☐	☐	☐	☐
9. Nonconforming; accepts disorder; is not interested in details; is individualistic; does not fear being different.	☐	☐	☐	☐
10. Criticizes constructively; is unwilling to accept authoritarian pronouncements without critical examination.	☐	☐	☐	☐
Add Column Total	☐	☐	☐	☐
Multiply by Weight	1	2	3	4
Add Weighted Column Totals	☐ >	☐ >	☐ >	☐
Total				☐

62

Scales for the Rating Behavioral Characteristics of Superior Students

Joseph S. Renzulli / Linda H. Smith / Alan J. White / Carolyn M. Callahan / Robert K. Hartman

Name _____ Date _____

School _____ Grade _____ Age _____

Teacher or person completing this form _____

How long have you known the child? _____ Months.

Part IV: Leadership Characteristics

	1 – Seldom or never	2 – Occasionally	3 – Considerably	4 – Almost always
1. Carries responsibility well; can be counted on to do what he has promised and usually does it well.	☐	☐	☐	☐
2. Is self confident with children his own age as well as adults; seems comfortable when asked to show his work to the class.	☐	☐	☐	☐
3. Seems to be well liked by his classmates.	☐	☐	☐	☐
4. Is cooperative with teacher and classmates; tends to avoid bickering and is generally easy to get along with.	☐	☐	☐	☐
5. Can express himself well; has good verbal facility and is usually well understood.	☐	☐	☐	☐
6. Adapts readily to new situations; is flexible in thought and action and does not seem disturbed when the normal routine is changed.	☐	☐	☐	☐
7. Seems to enjoy being around other people; is sociable and prefers not to be alone.	☐	☐	☐	☐
8. Tends to dominate others when they are around; generally directs the activity in which he is involved.	☐	☐	☐	☐
9. Participates in most social activities connected with the school; can be counted on to be there if anyone is.	☐	☐	☐	☐
10. Excels in athletic activities; is well coordinated and enjoys all sorts of athletic games.	☐	☐	☐	☐
Add Column Total	☐	☐	☐	☐
Multiply by Weight	1	2	3	4
Add Weighted Column Totals	☐ >	☐ >	☐ >	☐
63 Total				☐

Scales for the Rating Behavioral Characteristics of Superior Students

Joseph S. Renzulli / Linda H. Smith / Alan J. White / Carolyn M. Callahan / Robert K. Hartman

Name _____ Date _____

School _____ Grade _____ Age _____

Teacher or person completing this form _____

How long have you known the child? _____ Months.

Part I: Learning Characteristics

	1 — Seldom or never	2 — Occasionally	3 — Considerably	4 — Almost always
1. Has unusually advanced vocabulary for age or grade level; uses terms in a meaningful way; has verbal behavior characterized by "richness" of expression, elaboration, and fluency.	☐	☐	☐	☐
2. Possesses a large storehouse of information about a variety of topics (beyond the usual interests of youngsters his age).	☐	☐	☐	☐
3. Has quick mastery and recall of factual information.	☐	☐	☐	☐
4. Has rapid insight into cause-effect relationships; tries to discover the how and why of things; asks many provocative questions (as distinct from informational or factual questions); wants to know what makes things (or people) "tick."	☐	☐	☐	☐
5. Has a ready grasp of underlying principles and can quickly make valid generalizations about events, people, or things; looks for similarities and differences in events, people, and things.	☐	☐	☐	☐
6. Is a keen and alert observer; usually "sees more" or "gets more" out of a story, film, etc. than others.	☐	☐	☐	☐
7. Reads a great deal on his own; usually prefers adult level books; does not avoid difficult material; may show a preference for biography, autobiography, encyclopedias, and atlases.	☐	☐	☐	☐
8. Tries to understand complicated material by separating it into its respective parts; reasons things out for himself; sees logical and common sense answers.	☐	☐	☐	☐
Add Column Total	☐	☐	☐	☐
Multiply by Weight	1	2	3	4
Add Weighted Column Totals	☐ >	☐ >	☐ >	☐ .
64 Total				☐

2. JOHN FELDHUSEN"S THREE-STAGE MODEL

John Feldhusen
Purdue University

A Three-Stage Model For Gifted Education

John F. Feldhusen and Margaret B. Kolloff
Purdue University

Gifted education often seems to consist chiefly of attractive and exciting enrichment activities designed to "turn" gifted children "on" and make parents feel that something worthwhile is happening. Rarely do gifted programs have an explicit rationale or theoretical base, much less specific instructional objectives. Yet it seems that if programs for the gifted are to grow and become established in the curriculum, they should be systematically designed and theoretically defensible.

Models for Instruction

Renzulli (1977) offered a triad model which is an exception to the negative assertions above. It is a systematic plan for developing gifted programs. Three types of instructional activity characterize the model: 1) general exploratory experiences which permit a child to clarify his/her own interest and abilities, 2) group learning activities which help gifted children learn how to work more effectively with content, and 3) individual and small group projects. At the third level, gifted students use the methods of inquiry of scholars and professionals in dealing with "real life" problems.

In contrast with the enrichment model advocated by Renzulli, Stanley (1977) urges acceleration for the gifted. Beginning with the assumption that there is a small number of children who are prodigiously gifted by virtue of having advanced knowledge and ability in one or more of the subject matter areas, Stanley (1977) proposes an acceleration model for gifted youngsters in mathematics and science. His program, The Study of Mathematically Precocious Youth (SMPY), emphasizes intensive achievement testing in subject matter skill for youth who display some initial precocity. When the testing verifies the presence of high level achievement, various forms of acceleration are offered to bring the gifted child quickly into contact with an appropriate level and challenge of instruction. During the eight years of the project, Stanley and his colleagues have demonstrated the feasibility and desirability of such acceleration for highly gifted students in mathematics and more recently in science.

Our own experience in working with schools in developing programs for the gifted suggests that an ideal program would combine enrichment and acceleration to meet the needs of gifted youth. Children for whom an acceleration program would be appropriate are significantly advanced in areas such as mathematics,

---

Gifted/Creative/Talented, 1978, 1, 3-5 & 53-58

science, language arts, or social studies as reflected in standardized achievement test performance and parent and teacher observation. These are children whose achievement test performance places them above the 90th percentile in one or more areas. Their IQs are likely to be above 140. For these gifted students, the appropriate method would be to use further testing to verify their advanced status and to develop instructional methods which will advance them to a more appropriate and challenging level. Stanley documented (1977) the problem of leaving these children to languish in average instructional settings. Much of their time is wasted on repetitive homework assignments. The best educational environment for them is a homogeneous classroom group, paced by a teacher, with appropriate advanced subject matter.

Getzels and Dillon (1973) listed numerous ways of providing for these highly gifted children. They include grade skipping, compressing two grades into one year, taking high school courses while in junior high, taking college courses while in high school, and early admission to college. The most suitable approach is to open advanced level courses to these students. However, in larger cities special Saturday morning or evening classes or seminars have been organized for small groups of these gifted students, often on a college campus. Stanley also described an approach (1977) in which slightly older and more advanced gifted students tutor somewhat younger gifted students in basic subject areas.

While many teachers and school administrators seem to resist this acceleration approach (Instructor Magazine, May, 1977), there is no systematic evidence showing it to be harmful and much positive evidence to show that it is feasible and productive. Teachers often question the social maturity of gifted youth and fear that they will experience adjustment problems in an accelerated group. However, it appears that most gifted students adjust socially to new situations with great ease.

The current widespread enthusiasm for enrichment programs might serve the negative purpose of blinding educators to the need for acceleration for highly gifted children. While such programs might serve some of the needs of less gifted, creative and talented children, they will fail to meet the needs of the highly gifted who are at advanced achievement levels in one or more subject matter areas.

The Three-Stage Enrichment Model

We turn now to the gifted youngsters who need enrichment rather than acceleration. These are youngsters whose achievement levels are more modest (60%ile-80%ile), whose IQs may be in the range 110-140, and who may have creative or expressive talents and abilities. Their major needs may be satisfied in an enrichment program.

Feldhusen, Linden, and Ames (1975) and Feldhusen, Hynes, and Richardson (1977) have developed a new model of instruction which emphasizes higher level cognitive learning, professional application, and individualized learning. The model has been used successfully at the high school level and in undergraduate and graduate level college courses.

Drawing on the work of Renzulli, Stanley, and our own model for course design, we have developed a new model for gifted education which we have been trying out in several schools. The model holds promise as a rationale for the design of gifted programs at the elementary and secondary levels.

Our three-stage enrichment model begins with the following set of guidelines:

1. There should be a systematic program of identification of gifted, creative, and talented children with primary inputs from standardized achievement tests and teacher observations.

2. The gifted students should be organized into small groups which meet at least twice a week for guidance and enrichment activities.

3. Instructional objectives should be formulated and used as guides in planning all activities.

4. The activities should be intellectually stimulating and challenging.

5. A portion of these activities should be directed toward the development of independent study and learning skills.

6. There should be much stress on challenging reading and discussion.

These programs can be organized in a variety of ways. A classroom teacher may conduct such a program for two or more gifted children in his/her own classroom. The several teachers at a grade level may work together with one serving as resource teacher for all the gifted at a grade level. An outside resource teacher also affords an excellent opportunity to provide for these children, if such a person is available. Often the librarian can serve in this resource role.

Our three-stage model proposes three levels of instructional activity as shown in Figure 1. They may all be used intermittently, but there should be increasing emphasis on the higher levels. Stage one activity is concerned with the development of basic divergent and convergent cognitive abilities. At this stage there is much emphasis on relatively short activities selected and directed by the teacher. The exercises from New Directions in Creativity by Renzulli and Callahan (1973) are examples of basic skill building activities as are the activities in the Purdue Creative Thinking Program (Feldhusen, Treffinger, Bahlke, 1970). In the realm of logical thinking are the Basic Thinking Skills series by Harnadek (1977) and Critical Thinking by Harnadek (1976). Project REACH, directed by Joyce Juntune at Pike Lake School, 2101 14th Street, N.W., New Brighton, Minnesota has also published some excellent handbooks of creative

enrichment activities which are excellent for use with gifted children (Wandell & Foss, 1975).

Stage one activities must be carefully selected with objectives in mind and wisely used to assure suitable challenges for gifted youngsters. Otherwise they become only fun and excitement without clear educational relevance. Feldhusen and Treffinger (1977) examined a wide variety of these materials and published information about them in their book Teaching Creative Thinking and Problem Solving.

Stage two of the model calls for more complex creative and problem solving activities which require increased initiative from students and less teacher control. The Productive Thinking Program by Covington, Crutchfield, Davies, and Olton (1966), Think-Ins by Kaplan and Masden (1974, Imagination Express by Davis and DiPego (1973) and the simulation games developed by Sisk (1975) are all excellent illustrations of the activities appropriate to state two. The Creative Problem Solving model developed by Noller in Scratching The Surface of Creative Problem Solving (1977) is also a useful guide for stage two activities. It stresses an orderly progression through creative, convergent and evaluative sented in Figure 2. We urge teachers to go into stage two activities while continuing to use some stage one activities.

When the teacher has developed a good working relationship with the group, when the students show preficiency at stage two activities and skills, and when their reading has highlighted their special interests, they are ready to move into stage three activities. In stage three the students work on challenging independent research projects. As a prelude to stage three activity, a student interest analysis is appropriate. Renzulli (1977) offers the Interest-A-Lyzer which provides detailed information about a student's background interests and abilities. Stage three activities can be carried out individually and in small groups, The teacher may obtain assistance in generating and clarifying student interests in stage three activities with the Big Book of Independent Study by Kaplan, Masden, and Gould (1976). These materials guide individual learners through the process of independent research, from topic selection through record keeping and evaluation. A number of topics are provided for the students, but the principles and procedures are applicable to any independent study.

Stage three projects should involve gifted youngsters in challenging efforts to define and clarify a problem, ambitious data gathering from books and other resources, interpretation of findings, and the development of creative ways of communicating results. There is danger that stage three activities lose challenge and become busy project activities. The essence of stage three activities should be cognitive. Guidance by the teacher is needed to assure this end. Figure 3 gives a list of typical stage 3 activities.

The creative problem solving model pioneered by Parnes, Noller, and Biondi (1976) in their Guide to Creative Action can serve as a guiding system for stage three activities. It stresses creativity and systematic problem solving. The model has been used effectively with groups ranging from young children through adults.

The Triad versus The Three-Stage Model

Our three-stage model is similar to Renzulli's triad model in several respects and different in others. Renzulli stresses exploration of interests and "turn on" activities in stage one, whereas we accent the development of basic abilities in the beginning activities. Renzulli's stage two is analogous to our stage one in emphasizing the development of basic process abilities. Our stage two focuses on the development of intermediate independent study and problem solving abilities. In stage three Renzulli seeks quite dramatically high independent project and inquiry activities. Illustrations include preparation of and lobbying for legislation and publication of research articles and books. We stress simpler independent study with much focus on reading, information gathering, interpretation of material, and creative reporting of results.

Goals and Objectives

It has been stressed that goals and objectives should be formulated and used as guides for activities in all three stages of the model. Figure 4 presents a set of broad goals for a gifted program. They are not meant to be definitive, and they might be revised or changed completely to suit local needs and conditions.

Figure 5 presents a set of cognitive objectives which are appropriate for the three-stage model described in this paper. Note that the progression is from objectives which correlate with stage one activities through objectives 10 and 11 which emphasize independent, self directed learning activities.

Figure 6 presents a set of process-oriented affective and social objectives. These objectives also call for careful program planning to assure appropriate learning activities. The first one, "Work with other students..." is obviously realized in the small group, organized activities. Number 4 calls for special values clarification activities. Numbers 2,3, and 5 call for the teacher to make efforts to assure that program activities are carried out successfully by students and that the activities are challenging, stimulating, and interesting.

Summary

The three-stage model for gifted education proposes a hierarchical progression of enrichment activities developed on a foundation of cognitive and affective objectives. The gifted student, working within this model, becomes an increasingly self-directed, independent learner. The activities in the three-stage model are designed to develop the skills of productive thinking, problem solving, independent research and project planning.

The three-stage model is appropriate to the needs of the gifted student and the various organizational patterns of school settings. The model can be implemented by a classroom teacher for a single classroom or grade level grouping. In this manner, the gifted student will be provided for within the total school program.

References

Covington, M., Crutchfield, R., Davies, L., & Olton, R. Productive Thinking Program. Columbus, Ohio: Charles E. Merrill, 1966.

Davis, G., & DePego, G. Imagination Express: Saturday Subway Ride. Buffalo, New York: D.O.K. Publishers, 1973.

Feldhusen, J.F., Hynes, K.P., & Richardson, W.D. Curriculum materials for vocational organizations: An innovative approach. Clearing House, 1977, 50, 224-226.

Feldhusen, J.F., Linden, K.W., & Ames, R.E. Using instructional theory and educational technology in designing college courses. In Improving College and University Teaching Yearbook, 1975. Corvallis, Oregon: Oregon State University Press, 1975, 64-69.

Feldhusen, J.F., & Treffinger, D.J. Teaching Creative Thinking and Problem Solving. Dubuque, Iowa: Kendall/Hunt, 1977.

Feldhusen, J.F., Treffinger, D.J., & Bahlke, S.J. Developing creative thinking: The Purdue Creativity Program. Journal of Creative Behavior, 1970, 4, 85-90.

Getzels, J.W., & Dillon, J.T. The nature of giftedness and the education of the gifted. In R.M.W. Travers (Ed.) Second Handbook of Research on Teaching, Chicago: Rand McNally, 1973, 689-731.

Harnadek, A. Critical Thinking. Troy, Michigan: Midwest Publications, 1976.

Harnadek, A. Basic Thinking Skills. Troy, Michigan: Midwest Publications, 1977.

Instructor Magazine. Do you have to be gifted to teach the gifted? Preliminary results, 1977, 86(9), P. 20.

Kaplan, S., & Madsen, S. Think-Ins. Monterey, California: Creative Teaching Press, 1974.

Kaplan, S., Madsen, S., & Gould, B. The Big Book of Independent Study. Pacific Palisades, California: Goodyear Publishing Company, 1976.

Myers, R.E., & Torrance, E.P. Ideabooks. New York: Ginn and Company, 1965.

Noller, R.B. Scratching the Surface of Creative Problem-Solving. Buffalo, N.Y.: D.O.K. Publishers, 1977.

Parnes, S.J., Noller, R.B., & Biondi, A.M. Guide to Creative Action. New New York: Scribner's, 1976.

Renzulli, J.S. The Enrichment Triad Model. Wethersfield, Conn,: Creative Learning Press, 1977.

Renzulli, J.S., & Callahan, M. New Directions in Creativity. Evanston, Illinois: Harper and Row Publishers, 1973.

Sisk, D. Simulation: Learning by doing revisited. Gifted Child Quarterly, 1975, 19(2), 175-180.

Stanley, J.C. Rationale of the study of mathematically precocious youth (SMPY) during its first five years of promoting educational acceleration. In J.C. Stanley, W.C. George, & C.H. Solano (Eds.) The Gifted and the Creative, a Fifty-Year Perspective. Baltimore, Maryland: Johns Hopkins University Press, 1977.

Wandell, M.S., & Foss, K.J. Reach In Action. New Brighton, MN: Pike Lake School, 2101 14th St., NW, 1975.

Figure 5

Cognitive Objectives

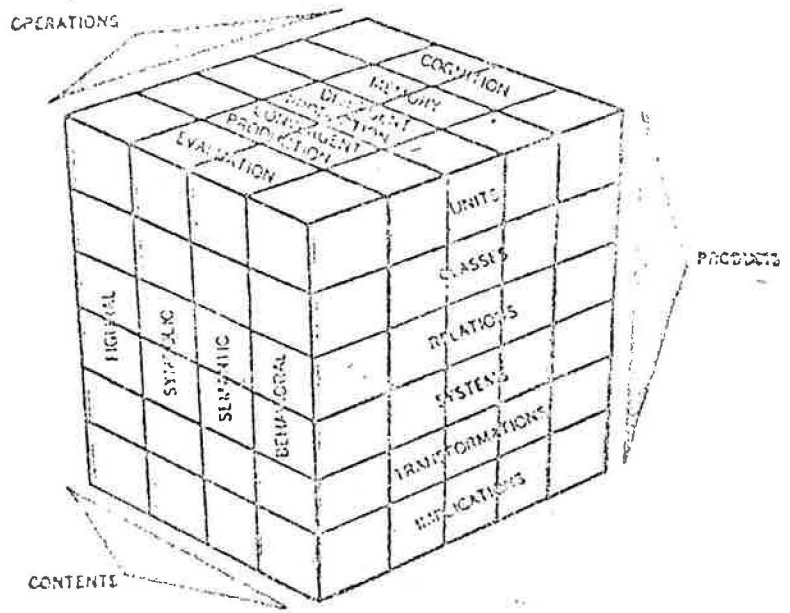
The Gifted students will:

1. Produce multiple ideas for various cognitive tasks (Fluency) (Stage I).
2. Think of a wide range of ideas for differing tasks (Flexibility) (Stage I).
3. Be original and create relatively unique or innovative ideas (Originality) (Stage I).
4. Develop basic ideas and fill in interesting and relevant details (Elaboration) (Stage I).
5. Ask questions which clarify puzzling and ambiguous situations (Stage I).
6. Use effective techniques in solving closed (single solution) and open (multiple solutions) problems (Stage I).
7. Synthesize ideas in independent and small group creative project activities (Stage III).
8. Evaluate alternative ideas or solutions in problem situations (Stage II).
9. Sense and clarify problems in a variety of situations (Stage II).
10. Exercise self motivation, direction, and independence in learning and project activities (Stage III).
11. Carry out an independent program of free reading at a challenging level appropriate to the level of reading skill (Stage III).
12. Use language effectively in speaking and writing (Stages I, II, III).

3. MARY MEEKER'S SOI MODEL

SOI Institute
El Segundo, CA.

Guilford's
Structure of the Intellect



Purpose: This structure presents the various components and classification of the intellectual factors. It indicates that an ability is a combination of an operation or process, a content, and a product.

Implications	Applications
Analysis of teaching strategies	Individualizing instruction, classroom discussions, questioning, in-service training
Evaluation of student performance abilities	Developing strengths, correcting weakness, parent-teacher discussions, student placement, setting goals and objectives
Assigning of appropriate learning activities to the gifted	Emphasizing divergent and evaluative thinking operations
Applying to learning experiences	Differentiating the curriculum, developing curriculum

Products

Units--Items of information having "thing" character
Classes--Items of information grouped for their common properties
Relations--Connections between units of information
Systems--Organized or structured aggregates of items of information
Transformations--Changes of various kinds in existing or known information or in its use
Implications--Extrapolations of information, in the form of expectancies, predictions, known or suspected antecedents, concomitants, or consequences

Operations:

Cognition--Recognizing problems, needs
Acquiring knowledge
Memory--Recalling facts
Convergent Production--Finding an anticipated and/or correct answer
Divergent Production--Producing an original, unexpected response
Evaluation--Reaching decisions; making judgements

Contents:

Figure content--Information in concrete forms, as perceived or as recalled in the form of images
Symbolic content--Information in form of signs, such as letters, numbers, musical notations, and other "code" elements
Semantic content--Information in the form of meanings to which words commonly become attached
Behavioral content--Information, essentially nonverbal, involved in human interactions (22).

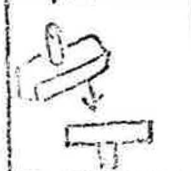
Operations		Contents		Products	
C	Cognition	F	Figural	U	Units
M	Memory	S	Symbolic	C	Classes
E	Evaluation	M	Semantic	R	Relations
N	Convergent Production	B	Behavorial	S	Systems
D	Divergent Production			T	Transformations
				I	Implications

Figural	Symbolic	Semantic	
	1	Book	U - Unit (single item)

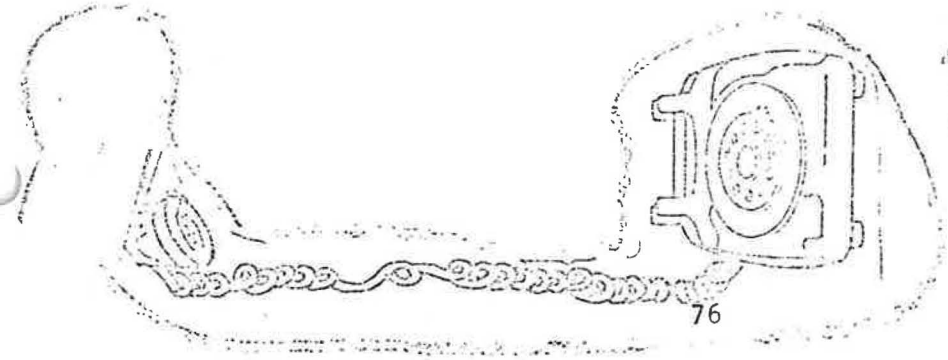
Figural	Symbolic		Semantic		
	Light Knight Night	10 25 5	Rose Violet Tulip	[illegible]	C - Classes (recognized sets)

Figural	Symbolic	Semantic	
	3-8 5-10 1-6 7-?	Pen - ink as Brush - Paint	R - Relations (Connections)

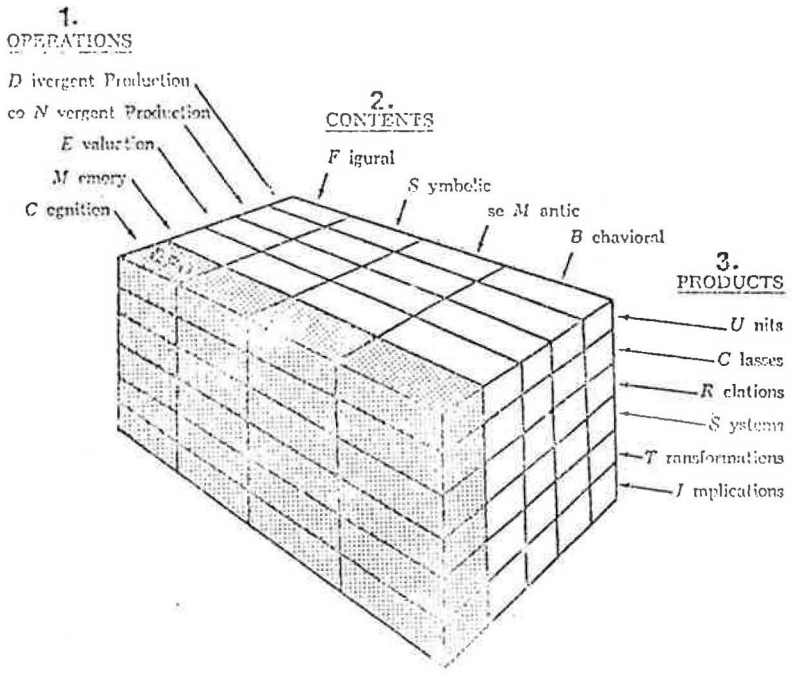
Figural	Symbolic	Semantic	
	4 7 10 13	The boy went to the store to buy some bread. Comprehension	S Systems (organized items of information)

Figural	Symbolic	Semantic	
	TIRE → TIER	Use a wine cork for a pincushion	T Transformation (modification of information)

Figural	Symbolic	Semantic	
	4 +3 = ? ; 9-K ; 12-G	Smith-Barber ; Cook-[illegible]	I Implications (generalize to like situations)



STRUCTURE OF INTELLECT MODEL*

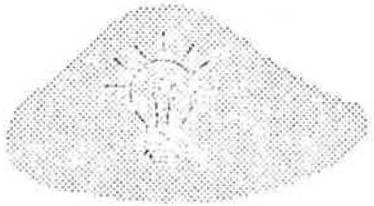


The Structure of Intellect is a model of intellectual abilities. If you will follow 1, 2, 3, around the model, you can identify the three letters of each of the 120 defined intellectual abilities. The three letters are called a *trigraph*. The three dimensions of the model specify first, the operation; second, the content; and third, the product of a given intellectual act. The grey area in the above model shows a "slab", that being the cognition slab.

The three letters that identify each cell define the Operation, Content, and Product in that order. For example, CFU stands for Cognition of a Figural Unit.

---

*From J. P. Guilford (1966), Report 36, USC. Meeker has changed the locations of structure labels with permission from Dr. Guilford to facilitate reading the *trigraphs* from left to right.



C

COGNITION

Cognition is the most basic of all the operations. All learning presupposes perception and awareness of stimuli. Cognition (better known as comprehension) is immediate discovery, awareness, rediscovery, or recognition of information in various forms: kinesthetic, visual or auditory. C is the letter signifying Cognition. After we cognize something, what do we do with it?

M

MEMORY

We may remember the information (or we may think it not meaningful and forget it.)

Memory, too, is a well-known intellectual operation-or did you forget? Memory is the retention or storage of information with some degree of availability when that information is needed. We should not underestimate the importance of memory abilities in the education process - and, there is no research to suggest that we cannot devise and present in a stimulating manner, materials which would exercise and improve memory. The letter for Memory is M.

E

EVALUATION

Evaluation skills are intellectual processes which are rarely taught in school. We know Evaluation as the art of decision making. Evaluation implies an awareness of error or discrepancy requiring judgment in relationship to known or understood standards. E is the letter for Evaluation in the Structure of Intellect.

N

CONVERGENT PRODUCTION

Convergent Production is the production of correct answers where "solution" is something more than mere retrieval. Convergent production is the generation of information from given information, where the emphasis is upon achieving conventionally accepted best answers. Convergent production is the most familiar Structure of Intellect ability expected in schools. So much of the curriculum exercises this ability that it is dubbed the "school block". It is, in fact, a higher order intellectual ability which is often taught before the preceding intellectual abilities are secure in children. N is the letter for Convergent Production.

D

DIVERGENT PRODUCTION

Divergent Production is the generation of information where the emphasis is upon variety and quality of output. The contrast between convergent and divergent production is the difference between zeroing in and expanding out. Divergent production should show fluency, flexibility, and originality; but on the other hand, it should also show quality, relevance and discipline. Divergent production is an operational definition of creativity but by no means a complete description of creative ability. The letter for Divergent Production is D.

The five operations discussed make up the first dimension of the model. Refer to the chart and model below.

OPERATIONS

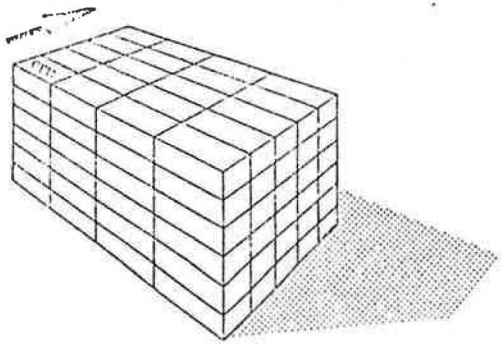
1

CONTENTS

PRODUCTS

C	Cognition	F	Figural	U	Units
M	Memory	S	Symbolic	C	Classes
E	Evaluation	M	seMantic	R	Relations
N	CoNvergent Production	B	Behavioral	S	Systems
				T	Transformations
D	Divergent Production			I	Implications

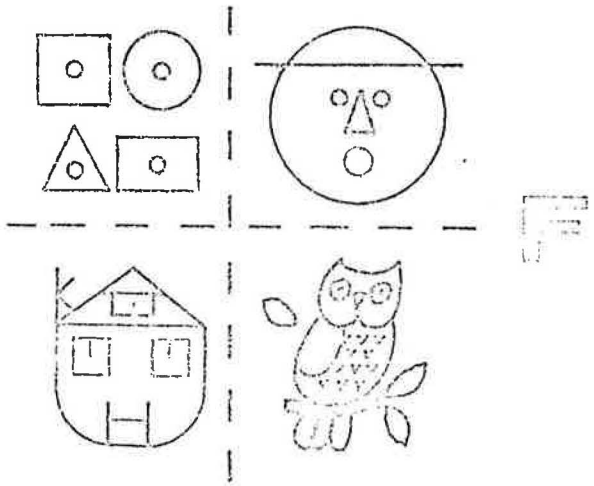
These letters always come first



Now, let us look at the dimension of the Structure of Intellect that deals with Content. There are four kinds of content out of which intelligence is made. These are Figural (F), Symbolic(S), SeMantic(M), and Behavioral(B).

FIGURAL CONTENT

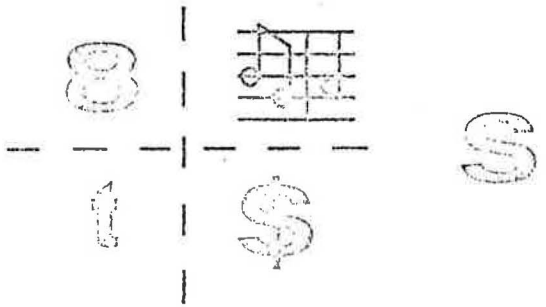
Figural Content is perceived or is recalled in the form of images, shapes, simple sounds, gestalts, whole, concrete "things". Figural Content has sensory character: visual, auditory, kinesthetic, olfactory. Artists,



sculptors, mechanics, and designers are high in figural intelligence. It is a most primitive kind of input and thus a very basic foundation for beginning learners. The letter for Figural Content is F.

SYMBOLIC CONTENT

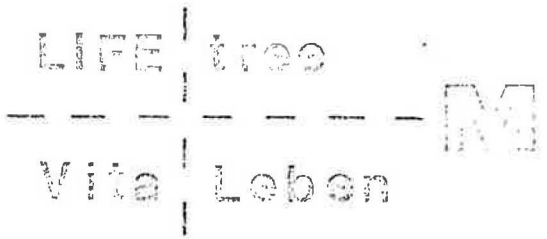
Symbolic Content is described by signs and materials such as letters, numbers, musical notations, and other code elements in which the elements have no significance in and of themselves. The alphabet and the number system provide code elements that can be



combined in endless ways, such as license-plate numbers, telephone numbers, words, prices, and statistics. Mathematicians are high in symbolic ability. The organic absence of numerical intelligence is called dyscalculia. The letter for Symbolic Content is S.

SEMANTIC CONTENT

Semantic Content differs from figural and the symbolic in that it refers to words and ideas where abstract meanings are associated. These are usually external referents. The word "Tree" relates to your image of a tree; it has meaning and is thus semantic. It is abstract in that your idea of a tree may differ from mine and though we could communicate generally, there may also be areas of



impreciseness. Teachers, writers, and actors are good with semantics. Reading is almost totally semantic. Dyslexics have trouble with semantics. Aphasics have trouble with production of semantics. M is the letter for SeMantic Content to distinguish it from Symbolic Content. Since it is in the second position in the trigram, it also is distinguished from the M for Memory which would occur in the first position.

BEHAVIORAL CONTENT

Behavioral Content is defined as the nonverbal information involved in human interactions where awareness of perceptions, thoughts, desires, feelings, moods, emotions, intentions, and actions of other persons and ourselves is understood without verbal clues. We can think of it as body language and an affective aspect of intellectual contents. Only a few behavioral abilities have been identified and thus need yet to be clarified. The letter for Behavioral Content is B.

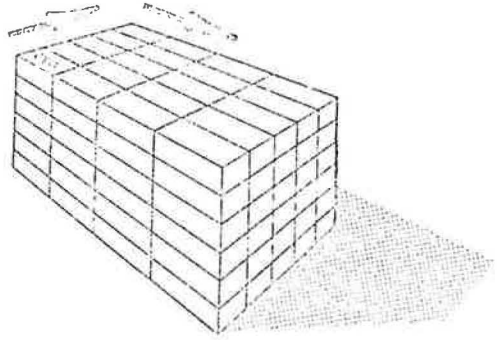
We have now discussed the first two dimensions of the model. Refer to the chart and model below.

OPERATIONS CONTENTS

PRODUCTS

C	Cognition	F	Figural	U	Units
M	Memory	S	Symbolic	C	Classes
E	Evaluation	M	seMantic	R	Relations
N	CoNvergent Production	B	Behavioral	S	Systems
				T	Transformations
D	Divergent Production			I	Implications

These letters always come second in the trigram.



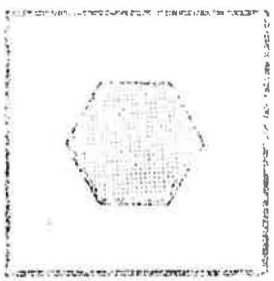
Procedures for turning the Guilford Cube into an SOI Profile are given in the SOI Its Interpretations and Uses. Educators can take a Binet, WISC-R or the SOI - LA Test and through the use of templates available at the Institute make individual SOI Profiles for any tests purporting to measure intelligence.

Products form the third dimension of the Structure of the Intellect model and deal with the ways figural, symbolic, or semantic contents are organized.

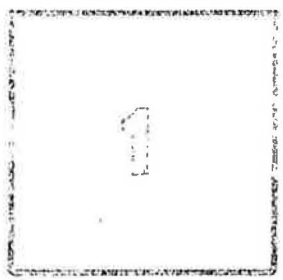
UNITS

Units form the first horizontal "slab" of the model. They are regarded as basic in this category and the simplest way in which contents are organized. A Unit is a single item, one of a kind. One figure, one symbol, a single word or idea, or a bit of behavior is a Unit. The letter for Units is U.

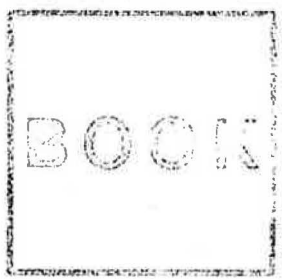
FIGURAL



SYMBOLIC



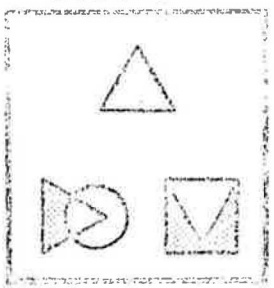
SEMANTIC



CLASSES

Classes form the second horizontal "slab" of the model. Classes are defined as recognized sets of items or information, grouped by virtue of common properties. A hierarchy of products may be inferred since each product subsumes the preceding product. For example, Classes follow Units and we can suppose that any classification is made up of units. The letter for Classes is C.

FIGURAL



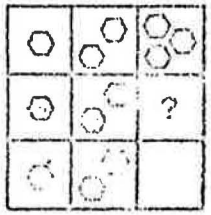
SYMBOLIC

SEMANTIC

RELATIONS

Relations fall below classes as you read down the Structure of Intellect model. Relations are regarded as connections between items of information based on variables or points of contact that apply to them. Relational connections are more meaningful and definable than implications. The letter for Relations is R.

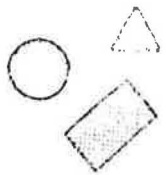
R

FIGURAL	SYMBOLIC	SEMANTIC
	3 – 8 5 – 10 1 – 6 7 – ?	PEN – INK as BRUSH – PAINT

SYSTEMS

The next product is Systems. Systems may be composed of figures, symbols, or semantics. A system can be mathematical, where the individual must comprehend the idea of a sequence of arithmetical operations necessary for a solution. Understanding the System of linguistics in sentence building, (for example, diagramming sentences), involves understanding the structure of language and would represent a semantic System. Systems are regarded as organized or structured aggregates of items of information; complexes of interrelated or interacting parts. The letter for Systems is S.

S

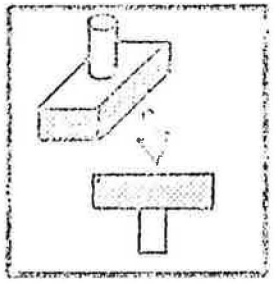
FIGURAL	SYMBOLIC	SEMANTIC
 (object orientation)	4 7 10 13	The boy went to the store to buy some bread. (comprehension)

TRANSFORMATIONS

Transformations are increasingly more abstract. They involve a modification of given information into other information; that is, transforming the original material into new information. This product defines creative responses in all five operations. The letter for Transformations is T.

T

FIGURAL



SYMBOLIC

SEMANTIC

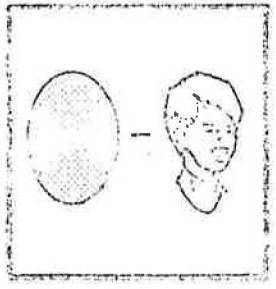
Use a wine cork for a pincushion.

IMPLICATIONS

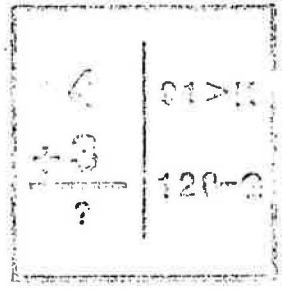
Implications are the final and most abstract in the product category. Teaching for implications poses a challenge. It is often taken for granted that the student will see the implications of what he has learned and will be able to generalize to unlike situations. The student who does this easily is fortunate, but the one who cannot needs to be shown or taught --- needs help in progressing from one step in learning to the next --- needs help in seeing cause and effect. Abilities involving implications may be developed through the use of appropriate assignments. The letter for Implications is I.

I

FIGURAL



SYMBOLIC



SEMANTIC

SMITH-DOCTOR

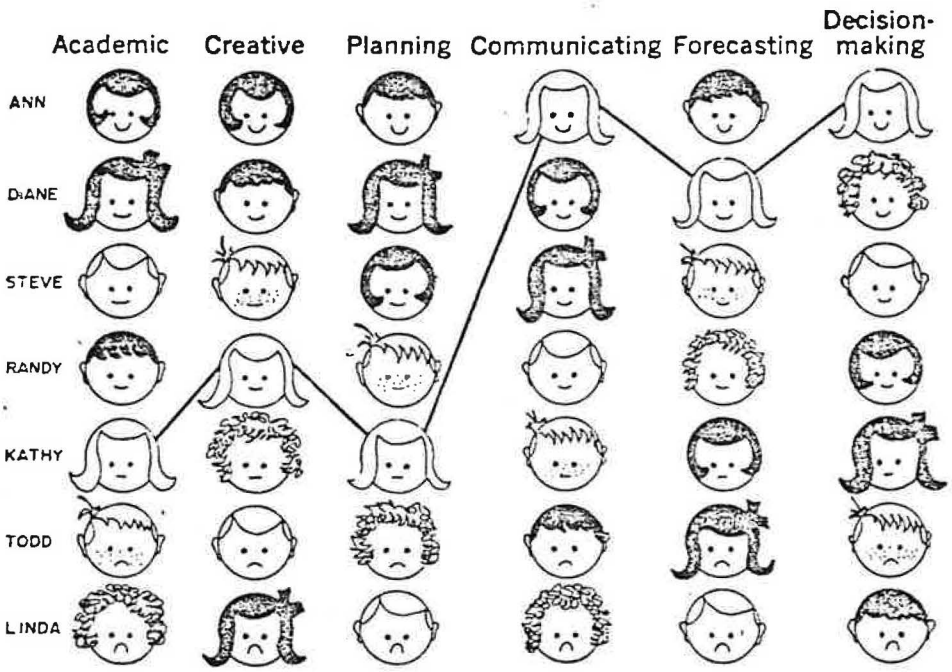
CORD-TEACHER

4. CALVIN TAYLOR'S TALENTS UNLIMITED

Talents Unlimited
Calvin Taylor
University of Utah

TAYLOR'S TALENT TOTEM POLES

WHERE DO YOU RATE ON THE TOTEM POLES?



ALL STUDENTS ARE NOW EDUCATIONALLY DEPRIVED*

The Multiple Talent Approach to Teaching has emerged from sustained research on talents. A breakthrough of teaching for creativity breaks away from the narrow band of academic-and-intelligence talents and expands into teaching for several other high level talents, heretofore largely ignored and left dormant in typical classrooms. Intelligence tests, encompassing about eight talents (less than one-tenth of the 98 talents now known), miss more than nine-tenths of the important intellectual talents now measurable. Consequently, the main goal in Multiple Talent Teaching is to have students use many more of these neglected talents than they do at present. (See Taylor's Talent Totem Trees above.)

Through this new approach, nearly all students can be above average in at least one of these many intellectual talents, which can now be functioning in classrooms. Furthermore, students can use each of these multiple talents to process information across all subject matter areas and thereby acquire greater knowledge and also work at the fringe of knowledge and beyond.

Instead of conceiving of students as merely learners and reproducers, we esteem them much higher as thinkers and producers, decision-makers, communicators, forecasters, creators, etc. Rather than depriving them of these "adult prerogatives," teachers have them deal with knowledge in all these talent ways. The youngest are remarkably ready to function in these adult-like activities. They even became more full-fledged children in the process, being livelier, healthier, happier, and more self-esteemed and self-managed when their natural talent processes are growing and functioning naturally.

The Teaching-of-Knowledge Approach has proved to be a less-sound educational focus, without yielding its promised by-products. In contrast, the Multiple Talent Totem Pole Approach moves toward the goal of developing effectively functioning, talented people; enriches and enlivens the students and their teachers and administrators; and thereby humanizes the entire educational process.

---

*Abstract for XVIIth International Congress of Applied Psychology, Liege, Belgium, 1971, Calvin W. Taylor, Professor of Psychology, University of Utah, Salt Lake City, Utah, 84112 and Robert L. Ellison, Research Director, Institute for Behavioral Research in Creativity, 1417 South 11th East, Salt Lake City, Utah, 84105.

MANUALS FOR TEACHERS

1. Opportunities for Creativity and Communications. A teacher's manual (1973).

2. Igniting Creative Potential. Bella Vista School (reprinted 1974).

The above two manuals can be ordered at $4.00 per set from Calvin W. Taylor, Department of Psychology, Building 404, University of Utah, Salt Lake City, Utah, 84112.

Climate for Creativity. Pergamon Press, 1972, our latest (9th) published volume on creativity. See also the featured article, "Developing Effectively Functioning People--The Accountable Goal of Multiple Talent Teaching," in the November-December 1973 issue of Education; and "Multiple Talent Teaching," Today's Education, Spring 1974.

THE EDUCATIONAL CHALLENGE FOR THE DECADE OF THE 70's

No. 1 Recommendation of the White House Conference on Children: To provide opportunities for every child to learn creatively, to grow creatively, and to live creatively.

TURNING ORIGINS OF CREATIVITY INTO LIFELONG RESOURCES

(Abstract for 1973 APA Symposium on "The Origins of Creativity")

Creative acts are extremely complex, consisting of a multiplicity of intellectual and non-intellectual resources which function collectively and effectively as a total internal process. Undoubtedly both hereditary and environmental components underlie well-functioning creative processes.

We have developed a new Multiple Talent Teaching Approach, including teaching for creativity, by producing a favorable climate and by setting up situational structures so that thinking and eventually creative thinking talents will be elicited and enhanced in classrooms. In this way at least some of the potential intellectual resources of creativity will become activated. It is also becoming feasible to start teaching for non-intellectual characteristics of creativity, such as personality, motivational, and other affective inner resources underlying high-level creative processes.

These various non-intellectual correlates of creativity, when measured by a well designed and thoroughly constructed biographical inventory, provide the best available yardstick of creative potential in individuals from junior high age through adulthood, with many correlations in the .50's and .60's against career criteria of creativity. Therefore, both by biographical approaches and by classroom performances in multiple talent teaching situations, we can, at least crudely, identify the degree of creative potentials in persons and teach to cultivate these potentials.

If a young person learns repeatedly how to turn on his creative processes, then he will likely use these processes throughout his entire lifetime as a main resource in his living and functioning effectively. At the extreme of a Picasso, re-experiencing his creative processes may become his way of life, which is focused almost entirely upon continuously creating. Contrarily, if his creative potentials remain unearthed and dormant so that non-creative patterns become established, his creative potentials will probably remain hidden and lost to him and to society as he continues to use only non-creative processes throughout the rest of his life.

APPENDIX E -- Characteristics

"TWELVE CHARACTERISTICS OF GIFTED CHILDREN"

1. Learns easily. Walks and talks early, perhaps learns to read before entering school. Wants to be taught to read at an early age.

2. Seeks answers. Has diverse and intense interests. When he asks questions, really wants the answers, to the point of becoming very angry if he doesn't get them.

3. Collects all kinds of things. Collects birds, stamps, chemicals, pictures of ballplayers or movie stars, rocks, marbles, insignia. Often these collections are very complicated.

4. Is physically advanced. Usually above average in height, weight. Above average measurements of shoulders, hips. Has developed strength, coordination and endurance. Physical poise may be one of first indications of giftedness.

5. Enjoys complicated games. Especially those involving a system or rules. Plays easily alone. When young, often develops imaginary playmates.

6. Is highly creative. Tends to be original in all things: play, work, planning, conversation, writing, and in adjusting to new situations. May show unusual skill in art or music, have good sense of rythm or color. States an idea in a picturesque way.

7. Has sense of humor. Makes up jokes and laughs at the humor of others on a more mature level, often on an abstract or imaginary basis.

8. Likes school. At least at first. But achievement in subjects may be lower than expected because of boredom. Participates in many extra-curricular activities.

9. Understands element of time. Studies calendars; takes clocks apart; talks about "yesterday" and "tomorrow," days of the week, "then" and "now."

10. Analyzes himself objectively. Is usually more trustworthy when tempted, is more honest, has better emotional stability.

11. Prefers older children. Even though rejected and mistreated by bigger friends.

12. May be "difficult." Passive attitudes of those around him, including parents and teachers, may make a gifted child impatient and even at times rebellious.

Willard Abraham, A Time for Teaching. New York: Harper Row, 1964.

DIFFERENTIAL CHARACTERISTICS OF THE GIFTED CHILD

I. Differential Cognitive Characteristics of the Gifted

- Extraordinary quantity of information
- High level of language development
- Unusually varied interests
- Advanced comprehension
- Unusual capacity for processing information
- Early ability to think in abstract terms
- Capcacity for seeing unusual and diverse relationships
- Ability to generate original ideas and solutions
- A cognitively critical approach to themselves and others

II. Differential Affective Characteristics of the Gifted

- Heightened pleasure in learning
- High level of responsiveness to people
- Unusual sensitivity to the expectations and feelings of others
- Earlier development of an inner focus of control and satisfaction
- Keen sense of humor may be gentle or hostile
- Low tolerance for drill and repetition
- Idealism and sense of justice
- Unusual capacity for awe and wonder
- An ability to establish deep relations
- Flexible thought processes
- Heightened self awareness
- High expectations of self and others which often leads to high levels of frustration with self, others and situations

III. Differential Physical Characteristics of the Gifted

- Unusual discrepancy between physical and intellectual development
- A need to express themselves physically in individualistic ways
- Low tolerance for the lag between their standards and their physical capacity

IV. Differential Interpersonal Characteristics of the Gifted

- A high level of ability to establish relationships with people outside their age group
- Unusual capacity to identify and relate to the uniqueness of others
- High potential for developing deep and rewarding interpersonal relationships

Differential Characteristics of the Gifted Child

V. Differential Societal Characteristics of the Gifted

- A higher level of self-actualization needs
- A higher level of cognitive and affective capacity to bring to societal problems

VI. Differential Social Expectations for the Gifted

- Leadership
- Solutions to social and environmental problems
- Involvement with the meta-needs of society (e.g., justice, beauty, truth)

SOME LEARNING CHARACTERISTICS OF GIFTED CHILDREN

May V. Seagoe
Professor of Education
University of California at Los Angeles

Characteristics	Concomitant Problems
1. Keen power of observation; naive receptivity; sense of the significant; willingness to examine the unusual	1. Possible gullibility
2. Power of abstraction, conceptualization, synthesis; interest in inductive learning and problem solving; pleasure in intellectual activity	2. Occasional resistance to direction; rejection or remission of detail
3. Interest in cause-effect relations, ability to see relationships; interest in applying concepts; love of truth	3. Difficulty in accepting the illogical
4. Liking for structure and order; liking for consistency, as in value systems, number systems, clocks, calendars	4. Invention of own systems, sometimes conflicting
5. Retentiveness	5. Dislike for routine and drill; need for early mastery of foundation skills
6. Verbal proficiency; large vocabulary; facility in expression; interest in reading; breadth of information in advanced areas	6. Need for specialized reading vocabulary early; parent resistance to reading; escape into verbalism
7. Questioning attitude, intellectual curiosity, inquisitive mind; intrinsic motivation	7. Lack of early home or school stimulation
8. Power of critical thinking; skepticism, evaluative testing; self-criticism and self-checking	8. Critical attitude toward others; discouragement from self-criticism
9. Creativeness and inventiveness; liking for new ways of doing things; interest in creating, brainstorming, free-wheeling	9. Rejection of the known; need to invent for oneself
10. Power of concentration; intense attention that excludes all else; long attention span	10. Resistance to interruption

Characteristics	Concomitant Problems
11. Persistent, goal-directed behavior	11. Stubbornness
12. Sensitivity, intuitiveness, empathy for others; need for emotional support and a sympathetic attitude	12. Need for success and recognition; sensitivity to criticism; vulnerability to peer group rejection
13. High energy, alertness, eagerness; periods of intense voluntary effort preceding invention	13. Frustration with inactivity and absence of progress
14. Independence in work and study; preference for individualized work; self-reliance; need for freedom of movement and action	14. Parent and peer group pressures and non-conformity; problems of rejection and rebellion
15. Versatility and virtuosity; diversity of interests and abilities; many hobbies; proficiency in art forms such as music and drawing	15. Lack of homogeneity in group work; need for flexibility and individualization; need for help in exploring and developing interests; need to build basic competencies in major interests
16. Friendliness and outgoingness	16. Need for peer group relations in many types of groups; problems in developing social leadership

Good learners, like everyone else, are living, squirming, questioning, perceiving, fearing, loving and languaging nervous systems. But they are good learners percisely because they believe and do certain things that less effective learners do not believe and do.

First, good learners have confidence in their ability to learn. This does not mean they are not sometimes frustrated and discouraged. But they have profound faith that they are capable of solving problems, and if they fail at one problem, they are not incapacitated in confronting another.

Good learners tend to enjoy solving problems. The process interests them, and they tend to resent people who want to "help" by giving them the answers.

Good learners seem to know what is relevant to their survival and what is not. They are apt to resent being told that something is "good for them to know." Even if it is, they resent being told so.

Good learners prefer to rely on their own judgment. They recognize their limitations and suffer no trauma in concluding that what they believe is apparently not so. In other words, they can change their minds.

Good learners are emphatically not fast answerers.

Good learners are flexible. While they almost always have a point of view about a situation, they are capable of shifting to other perspectives to see what they can find. They seem to understand that "answers" are relative, that everything depends on the system within which you are working. Frequently they begin their answers with the words "It depends."

Good learners have a high degree of respect for facts (which they understand are tentative) and are skilled in making distinctions between statements of fact and other kinds of statements.

Perhaps most importantly, good learners do not need th have an absolute, final, irrevocable resolution to every problem. "I don't know" does not depress them.

Excerpts from Teaching as a Subversive Activity by Neil Postman and Charles Weingartner, Delacorte Press, 1969

THE DEMANDS OF GIFTEDNESS

Premises:

1. High level intelligence makes certain demands upon the gifted child.
2. Behavior of gifted children results from these demands.
3. There are curriculum implications inherent in these demands.

---

1. To crave for knowledge - to satisfy the need to feel progress in what he is learning.
2. To feel the need to focus on or devour a subject.
3. To make observations; to see relationships.
4. To place high standards on himself.
5. To be creative or inventive; to seek an unusual or unique approach to an assignment.
6. To questions generalizations.
7. To be serious-minded; to be intolerant (usually) of foolishness or silliness.
8. To concentrate - to become totally absorbed in a task - to have a longer attention span.
9. To explore wide interests at a maturity beyond his chronological age.
10. To be sensitive to honor and truth.
11. To express ideas and reactions. (Sometimes seen as argumentative.)
12. To resist routine, drill; to require unique ways of pursuing drill.
13. To work alone.
14. To be intolerant of stupidity.
15. To seek order, structure, and consistency.
16. To do critical, evaluative thinking. (May lead to critical attitude toward self and others.)
17. To be rarely satisfied with the simple and obvious.
18. To be impatient with a sloppy or disorganized thinking.
19. To be sensitive and empathetic.
20. To have his intelligence responded to.
21. To seek out his mental peers.
22. To be friendly and outgoing.
23. To use his power of abstraction; to see and point out cause and effect relationships.
24. To have time for thinking - solitude.
25. To pursue a learning pace of his own. (May be fast or slow.)
26. To be outstanding in several areas but average in some.

There are four general needs which are characteristic of the gifted and talented population which need to be met in a systematic manner.

First, the gifted or talented student exhibits a need to be recognized as having a special talent by his peers and adults.

Too often the talented student is regarded as strange by his classmates and this leads to problems as stated in James J. Gallagher's book, Teaching the Gifted Child. Gallagher states, "These youngsters who reveal originality and creativity have special problems related to peer acceptance (they are viewed as strange) and teacher acceptance (their free-wheeling approach and disregard for classroom convention or teacher direction seems to irritate the teachers). Accordingly, special efforts need to be made to identify these students and to provide an environment in which they can make maximum use of their talents."

Additionally, it is stated in Education of the Gifted and Talented, a report to the Congress of the United States by the U.S. Commission of Education, "Exceptional capacities create problems for most people, even at the earliest ages. Young gifted children encounter difficulties in attempting to manage and direct activities. Since their ideas differ, they lose the participation of others and find themselves marginal and isolated."

Second, there is a need to be doing things and be actively involved in things that are important and satisfying to the talented individual.

In the Education of the Gifted and Talented, it also stated that, "When conditions are changed and the gifted and talented are given opportunities to satisfy their desires for knowledge and performance, their own sense of adequacy and well-being improves."

Third, there is a need for acceptance and communication by an adult through his expertise in the area of talent.

Often the gifted or talented student has the ability to grasp issues and/or perform in a given area with such proficiency that only a talented adult with more years of study and expertise can meet this need.

Fourth, there is a need for experience in the area of talent that will give the individual a start and influence and confirm his desire to continue in a field where he can make contributions which are important to him and society.

In his theory of human motivation, psychologist Abraham Maslow postulated that human needs exist in a five-part hierarchy. It was his assumption that as the lower level needs are met the human organism then moves to a higher level need which must be satisfied or frustration and other types of inappropriate behavior occur. It is our assumption that the talented student to be served by this has moved from the lower level needs (psychological and safety), through the love need and is now moving into the two uppermost needs (the need for esteem, and the need for self-actualization). As one moves into the self-actualization area it may be postulated that we may still (if not always) expect that a new discontent and restlessness will soon develop, unless the individual is doing what he is fitted for.

"Gifted pupils, even when very young, depart from self-centered concerns and values far earlier than their chronological peers."

APPENDIX F -- The Federal Definition of Gifted and Talented

The U.S. Office of
Gifted and Talented

DEFINITION OF GIFTED AND TALENTED

Public Law 91-230, Section 806, states that the Commissioner of Education shall define "gifted and talented" for purposes of Federal education programs. The definition established by the advisory panel reads:

> Gifted and Talented children are those identified by professionally qualified persons who by virtue of outstanding abilities, are capable of high performance. These are children who require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and and society.
>
> Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination:
>
> 1. general intellectual ability
> 2. specific academic aptitude
> 3. creative or productive thinking
> 4. leadership ability
> 5. visual and performing arts
>
> It can be assumed that utilization of these criteria for identification of the gifted and talented will encompass a minimum of 3 to 5 percent of the school population.
>
> Evidence of gifted and talented abilities may be determined by a multiplicity of ways. These procedures should include objective measures and professional evaluation measures which are essential components of identification.
>
> Professionally qualified persons include such individuals as teachers, administrators, school psychologists, counselors, curriculum specialists, artists, musicians, and others with special training who are also qualified to appraise pupils' special competencies.

APPENDIX G -- Learning Styles

TRANSACTION ABILITY INVENTORY*

Dr. Anthony F. Gregorc
The University of Connecticut

The purpose of this instrument is to aid you to identify your natural means of transacting with your environments. These means are identified, in part, through your ranking of the words in the following sets.

There are no right or wrong answers. The different words in the lists are equally good. The aim of this inventory is to aid in the identification of transaction abilities and capacities, not evaluate them.

DIRECTIONS: (1) To take this inventory, you need a reference point from which to judge the value of the words. That reference point is your SELF, i.e., who you are deep down. Please take the necessary time to reflect on this. Do not use the following as reference points: who you are at work, or at home, or who you would like to be. (2) Rank order ten sets of four words listed below. To do this, rank each horizontal set of four words giving a 4 to the word which best describes your big S, a 3 to the word which is the next most descriptive, a 2 to the next word, and a 1 to the word which is least descriptive. BE SURE TO ASSIGN A DIFFERENT RANK NUMBER TO EACH OF THE FOUR WORDS IN EACH SET.

EXAMPLE: 0. 3 sun 2 moon 4 stars 1 clouds

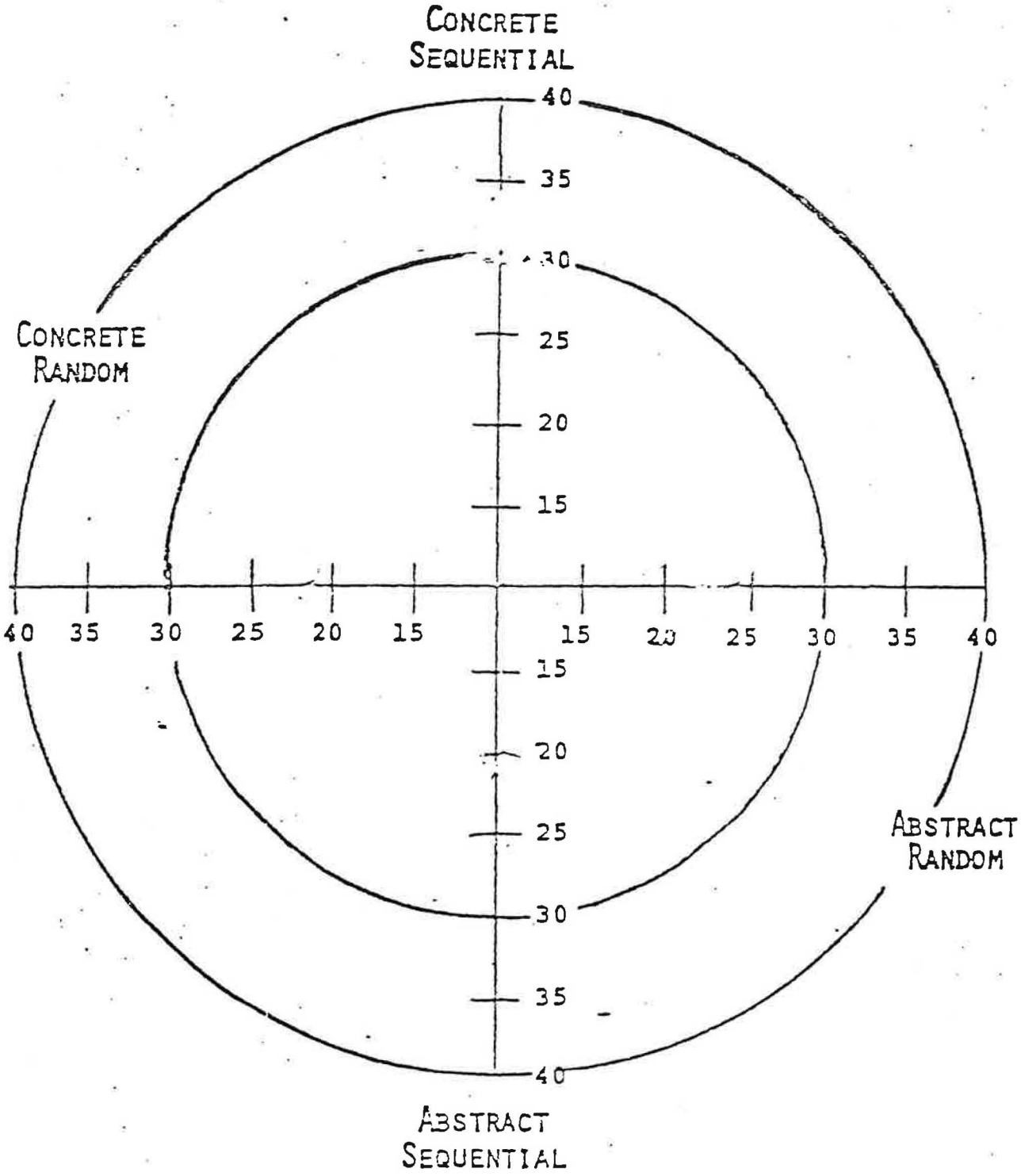
(3) To determine the rank order, react to your first recognition of the words, i.e., go on first impression. This approach is necessary for the most valid results from this inventory.

1.	___ objective	___ affective	___ evaluative	___ intuition
2.	___ effort	___ subjective	___ excellence	___ experimenting
3.	___ careful with detail	___ passionate	___ conceptualization	___ creative
4.	___ thorough	___ spontaneous	___ logical	___ trial/error
5.	___ competent	___ colorful	___ intelligent	___ risk-taker
6.	___ structure	___ attuned	___ analytical	___ pragmatic
7.	___ realistic	___ empathic	___ documentation	___ innovative
8.	___ concrete	___ wholistic	___ theoretical	___ insightful
9.	___ product-oriented	___ person-oriented	___ hypothetical	___ perceptive
10.	___ practical	___ feelings	___ model-oriented	___ practical dreamer

FOR SCORING:

_____ _____ _____ _____

TRANSACTION ABILITY PROFILE
(TAP)



STYLISTIC CHARACTERISTICS OF DOMINANT TRANSACTION ABILITIES

CS	AR	AS	CR
SOURCE PREFERENCES:	**SOURCE PREFERENCES:**	**SOURCE PREFERENCES:**	**SOURCE PREFERENCES:**
Concrete-from concrete reality, special objects or actual instances	Abstract-apart from concrete reality, special objects or actual instances	Abstract-apart from concrete reality, special objects or actual instances	Concrete-from concrete reality, special objects or actual instances
Sequential-in linear manner; successive connected parts; structure	Random-multiple sources contributing without an apparent aim; flexible structure	Sequential-in linear manner; successive connected parts; structure	Random-multiple sources contributing without an apparent aim; flexible structure
BEHAVIOR:	**BEHAVIOR:**	**BEHAVIOR:**	**BEHAVIOR:**
Specific use of one or more of the five senses; direct experience	Uses sixth sense for "vibrations"; attuned to body language, color and mood	Uses conceptual pictures to decode symbols (written, verbal, and/or image)	Uses insight; makes intuitive leaps and gets "gist" of ideas or situations
Sees situations in blacks and whites	Sees situations in grays	Sees "the" answer to situations	Sees "an" answer or multiple answers to situations
Is cognitively-based	Is affectively-based	Is analytically cognitively-based	Is cognitively-affectively based
Accepts official authority	Accepting of person authority; medium is the message	Accepts referent authority (documentation important)	Accepts varying forms of authority if considered legitimate
Has direct, practical pay-off orientation	Has multi-sensory personal experience and group orientation	Has vicarious, hypothetical, theoretical, analytical, evaluative orientation	Has problem-solving, application orientation
Anticipates "good" performances; gives and expects to receive primarily corrective feedback	Anticipates subjective-personal performance; gives and expects to receive approval feedback	Anticipates "excellent" performance; gives and expects to receive primarily corrective feedback	Anticipates mixed performances; gives and expects to receive approval and corrective feedback
Sees discrete parts	Sees a whole	Sees models with logical parts	Sees a whole with overlapping parts
Follows step-by-step directions; careful attention to detail	Follows broad overarching guidelines under minimal structure, restraint and limitation	Follows overarching substantative, logical guidelines and general procedures	Follows overarching guidelines with reasonable structure, restraint and limitation
Has low tolerance for distraction	Likes a "busy" environment	Has low tolerance for distraction	Likes a stimulus-rich environment

NOTE: These behaviors are indicators of subtle and potent individual transaction abilities, capacities, and preferences.

From the research of Anthony F. Gregorc, The University of Connecticut.

BRIDGING TECHNIQUES

FOR THE CS STUDENT

1. Outline of material
2. Series of questions which serve as an organizational framework, drawing attention to major points
3. Procedural steps
4. Summation points
5. Preview of information
6. Checklist of completed work

FOR THE AR STUDENT

1. Opportunity for group work and discussion
2. Tie to empathetic, aesthetic, or emotional qualities
3. Set time limits
4. Provide "down" time with teacher to air problems

FOR THE AS STUDENT

1. Tie to readings
2. Minimize length of workbook activity
3. Provide opportunity for "research" and more detailed information

FOR THE CR STUDENT

1. Encourage application to problem
2. Allow for self chosen expression of learning
3. Minimize formal reports
4. Provide "product" outlet when possible

TEACHING APPROACHES

I. MULTIPLE-APPROACH TECHNIQUE

(Used to meet the range of learner's preferences)

STEP ONE: Identify the objective

STEP TWO: Offer teaching technique options for CS, AR, AS AND CR.

II. SINGLE-APPROACH TECHNIQUE

(Used to stretch styles)

STEP ONE: Identify the objective

STEP TWO: Select a particular teaching technique

STEP THREE: HELP STUDENTS develop their abilities to learn via the selected technique

III. VARIETY-APPROACH TECHNIQUE

(Used when learner's preference are unknown or not attended to)

STEP ONE: Identify the objective

STEP TWO: Utilize different techniques from the various categories

(CS, AR, AS AND CR)

throughout a period or day

DAILY INSTRUCTIONAL ANALYSIS FORM

1. OBJECTIVE: _____

_____

TEACHING TECHNIQUE(S)	TAI ADDRESSED
_____	_____
_____	_____
_____	_____

2. OBJECTIVE: _____

_____

TEACHING TECHNIQUE(S)	TAI ADDRESSED
_____	_____
_____	_____
_____	_____

3. OBJECTIVE: _____

_____

TEACHING TECHNIQUE(S)	TAI ADDRESSED
_____	_____
_____	_____
_____	_____

FINAL STATEMENT

LEARNING is a process of such infinite complexity that it can be observed and studied from a great many angles. The topic presents us with a problem which is beyond our powers to comprehend. We therefore have to content ourselves with aspects that are of particular interest to us and with rules-of-thumb which emerge from the study of these aspects.

What has been shared in today's presentation are some of the twenty conscious-level learning aspects of interest to me. Hopefully, they will prompt you to observe and study learning in a way you have not done before.

A.F.G.

EDITORIAL

Learning/Teaching Styles: Potent Forces Behind Them

Anthony F. Gregorc

The use of learning style/teaching style ideas and materials is a serious undertaking. It is not for amateurs or for those who just want to be fashionable. These conclusions are drawn from extensive observations, in-depth interviews, and subsequent analysis of data from students and teachers who are involved in learning and teaching style activities. This type of research is phenomenological. It consists of the cataloging of overt behavior (pheno) and the analysis of the behavior to determine its underlying cause (noumena). From this, certain inferences are drawn that tell us about the nature (logos) of the learner.

Learning Style

From an analysis of what the people said and did, the following phenomenological definition of learning style was developed: *"Learning style consists of distinctive behaviors which serve as indicators of how a person learns from and adapts to his environment. It also gives clues as to how a person's mind operates."*

Analyses of overt behavior indicated that some people's minds operate best in concrete situations, others in abstract, and some in both. Some individuals have an ordering preference that is sequential, while others demonstrate nonsequential patterned preferences. Some use both. Some people process best through deduction, while others use forms of induction. And, again, others use both. Some individuals function best on their own, while others are most productive through group activity. Some do equally well in either situation.

The mind must also deal with such environmental factors as room temperature, humidity, lighting, noise level, and the student's age and stage of physical and emotional development.

Differences in Style

What accounts for differences in style? Are they inherited, or do we acquire them from experience? From various sources of research, style appears to be both nature/nurture in its roots. Patterns of adapting to environments are apparently available to each of us through our genetic coding system. These patterns have permitted the survival of our family, nationality, and race. Geneticists and sociobiologists are studying these mysteries.

Patterns are also made available to us through our environment and culture. These patterns are called expectations, preferred modes of behavior, mores, and laws. They are designed to promote the survival of man and his environment. Behaviorists, anthropologists, and sociologists are studying these patterns and their effects.

The third type of pattern is more esoteric in nature and is being studied by eastern and western psychologists. These patterns lie within the subjective part of our individual natures. They are properties of the self, or soul, and are used for self-actualization purposes.

Can these three types of patterns be at odds? Yes. But they may also be in total harmony.

Teaching Style

The phenomenological study of environment tells us that: *"every environment places demands upon individuals for adaptation"*; that is, individual needs align with the immediate and surrounding environment.

Applied to education, this means that when a teacher selects a method of presentation such as a lecture, he/she is placing certain and limited adaptation demands upon the minds of the stu-

dents. For example, a one-hour lecture could require such adaptive qualities as abstract symbol decoding, an aural modality, dependency, separative behavior, deductive reasoning, logical sequencing, the suppression of emotion and immediate verbal response, and the ability and willingness to adjust to the heat, humidity, lighting, and sound level in the room for a prolonged period of time.

This example points to the extraordinary relationship among student, teacher, and environment. It points out the numbers of adjustments a student's mind must make. But it also tells us about teaching! It is sobering to think of the powerful effect a teacher can have upon the minds of students particularly when he/she is in charge of a required course and offers only one or two means of reaching the course objectives.

Could it also be that the most successful students in a classroom just happen to have adaptive abilities that match the hidden demands being placed upon them by the teaching method? The answer is yes!

Alignment

The alignment process between learning style and environmental demands lies within the rational powers of the mind. Students who align easily are able to "read or psych out" their environments. They use both natural (inherent or innate) and artificial (learned) means of adapting. These alignment abilities permit successful adaptation to a range of environments including open classrooms, strict study halls, and unsupervised independent study activities. Students who have any degree of difficulty in alignment ability often lack the required means for adapting. Some may find themselves "trapped" in certain environments and may withdraw, tune out, or become indifferent. Others may seek to change these environments to suit their learning styles. Many discipline problems are rooted in the search for compatible alignments.

Obstacles in Diagnosis

Practitioners, researchers, and writers have been focusing their attention on the realized and potential benefits of aligning learning styles and teaching styles. As a result of their efforts, there are many materials out on the market today available to educators interested in the learning/teaching style alignment process.

We must bear in mind, however, that any idea that has the potential of doing great good, also has the potential for doing serious harm. This must be kept in mind particularly when using the many fine learning/teaching style assessment instruments available. Analysis has revealed:

1. Instruments, by their very nature, are exclusive; that is, they focus on certain variables and therefore sacrifice other possibilities.

2. Some students wittingly or unwittingly lie on any type of self-reporting instrument. Others read elements into questions and statements that are simply not there.

3. Some students have used artificial means of adapting for so long that they report these as "preferred means of learning." By doing so they run the risk of receiving prescriptions that continue to reinforce artificiality rather than receiving means that would encourage and draw upon their natural abilities.

4. An educator's attitude (either positive or negative) toward a particular student or toward the concept of diagnosis/prescription itself can

drastically influence both instrument interpretation and consequent prescription.

What do these findings mean to us? Basically they imply that educators must be wary of making prescriptions solely on the results of the instrument itself. If prescriptions are incorrect, the door is open to anger, confusion, and frustration for both the teacher and student. Further, we must be aware that there are human elements in learning that cannot be measured. This means that a teacher must use his/her intuition and sound judgment along with data from instruments. There is no teacher-proof diagnostic prescriptive tool!

From phenomenological studies of learning/teaching styles, the following inferences have been drawn:

1. Learning style consists of the outward display of qualities of the mind.

2. Diagnosis of learning style is far from being an exact science. We must, however, continue to diagnose in order to understand more about the human mind and how people learn.

3. Prescriptions based upon diagnosis must be tentative, varied, monitored, and verified by conversations with the student. In this approach, we can find out how our demands and suggestions are helping or hindering his/her learning process.

4. Teaching style is more than a methodology. It places subjective demands upon the learner who may or may not have abilities to match such demands.

5. The alignment of any style is dependent upon the capacities and abilities of both the learner and the teacher to adapt.

As we come to understand more about learning/teaching styles and how the mind operates, I believe we will improve mental health and self-understanding as well as increase learning. Learning styles and teaching styles have already revealed much to us and continued research will undoubtedly reveal more. This thrust can lead to the revitalization of "the noblest of professions."

Anthony F. Gregorc is Associate Professor, Department of Secondary Education, The University of Connecticut, Storrs.

January, 1979, Volume 36/Number 4

A New Definition for Individual

Anthony F. Gregorc
Helen B. Ward

If educators are to successfully address the needs of the individual learner, they must understand what the word individual means. They must relate teaching style to individual learning preference.

The word individual is basic and vital to the language of education. But, as happens with many very familiar things we have lost the essence of its meaning. We equate it with singleness or oneness, as in *group* versus *individualized* instruction. Or, we associate the word with uniqueness or specialness, as in individual attention. Such usage belies the word's meaning and, as a result, some of our teaching and organizational approaches have gone awry.

The secret to understanding this vital word as it applies to both learning and teaching lies in the two parts of which it is comprised: *indivi* (non-divisible or inseparable), and *dual* (duality).

The Concept of Duality

Let us consider duality first. The concept appears throughout Western thought in such fields as philosophy, religion, and psychology. Examples include such classic dualities as Plato's real *vs*. ideal, Descartes' body *vs*. mind, the Judaeo-Christian doctrine of good *vs*. evil, and Jung's conscious *vs*. unconscious.

Education, for the most part, does not distinguish dualities in man when dealing with the processes of learning and teaching. We hint at dualities when we talk about the educational pendulum swinging from

Anthony F. Gregorc is associate professor of secondary education at the University of Connecticut at Storrs, and Helen B. Ward is instructional supervisor at Glenbrook North High School, Northbrook, Ill.

"back-to-basics" to relevance curricula, from homogeneous grouping to heterogeneous grouping, from open to closed classrooms. But we fail to identify the dualities in man which are being approached or abandoned.

The idea of inseparability has occupied the minds of contemporary thinkers as they consider the classic dualities. They continually discuss the reconciliation and balancing of these dualities. We educators, on the other hand, seem to accept the inevitability of the swinging pendulum and merely wait for a change to come. Or if we decide to effect change we compromise, permitting coexistence rather than moving toward genuine balance.

The Research Project

The lack of identification and subsequent reconciliation of dualities that influence learning and teaching led us to conduct research to find dualities, observe how they manifest themselves, seek ways of addressing them when teaching, and develop strategies for encouraging balance within each student.

Hundreds of observations and interviews with adolescents and adults have yielded expressions of many dualities and of how their inseparableness is met or strained. Two sets of dualities were apparent in the initial phase of learning, the information acquisition phase.*

We found a duality in the use of *abstract* and *concrete* reference points for thinking. Also, an ordering duality emerged in the form of *sequential* and *random* preferences. As we assessed behavior, we found that these sets of dualities joined to form four distinct learning preference patterns or modes. They are:

Abstract Sequential (AS)	Concrete Sequential (CS)
Abstract Random (AR)	Concrete Random (CR)

Every person interviewed revealed use of all four modes—a natural function of inseparable dualities. However, at least 90 percent expressed a definite preference for one or two manners of acquiring information.

Some had such an extreme preference in a particular mode that they could be called "pointy-headed."

To aid understanding of the learning preference modes, we offer the following descriptions:

*It should be noted that subsequent use of the words "learner" and "learning" in this article refer to the information acquisition phase of the learning process.

the other hand, the methods were mismatched, the student "worked hard to learn," "learned some and missed some material," or "tuned out."

Could it be that the most successful students in a given classroom happen to possess learning preferences that match the instructional method preferences of the teachers? We believe this to be so.

With this potential success factor as a consideration and the knowledge that mismatches are evident in most classroom settings, the following question arises: How can a teacher endeavor to better match the learning preferences of the broad spectrum of his students? Experimentation has provided the following suggestions.

Initially, the teacher should observe the behavior of the learners and attempt an empirical assessment of the learning preferences present in the classroom. The descriptions of CS, CR, AS, and AR learners can provide guidelines. The assessments should then be discussed with students for verification and modification.

The teacher may then attempt to vary class presentation through the inclusion of methods of instruction that meet the range of the learners' preferences. For example, a course objective might be accompanied by four alternatives through which students may accomplish that objective. Or the teacher may approach a given course objective through only one method, with the provision that the students would be assisted in developing their abilities to learn via the selected method. These two strategies are outlined in the illustration.

Plan A: Multiple-Approach Technique

Step One:	Identify the objective.
Example:	The student will describe the primary functions of the role of a lobbyist in governmental decision making.
Step Two:	Offer four instructional approach options.
Example:	*Abstract Sequential Learner* Read textbook, pp. 212-239; or listen to audiotapes 38, 29, and 40 on file in the library. *Abstract Random Learner* Participate in a discussion group with lobbyists who have been invited to class, or watch movie 404 in the library screening room. *Concrete Sequential Learner* Given a list of appropriate questions, take a field trip and question lobbyists in action; or complete computer-assisted instruction program 48, available in the library. *Concrete Random Learner* Enact a simulated meeting between key legislators and lobbyists or play game entitled "I'll Meet You In The Lobby," available in the social studies resource center, room 143.

Plan B: Single-Approach Technique

Step One:	Identify the objective.
Example:	The student will describe the primary functions of the role of a lobbyist in governmental decision making.
Step Two:	Use a particular instructional approach.
Example:	Show film "The Role of the Lobbyist in American Politics" (a techni[illegible] for abstract random learners).
Step Three:	Help the students develop their abilities to learn via the selected approach.
Example:	The teacher performs the following: Preview the film and provide the students with an overview. Prepare and provide a list of questions, the answers to which will be found in the film. Show the film, stopping the projector at appropriate places to make or reinforce points. After the showing, direct the students to write and turn in answers to the questions provided prior to viewing of film. Initiate discussion of the content of the film. Initiate discussion of how best to extract ideas from a film. Show the film again without interruption. Elicit further student reaction by asking what else was learned from a second viewing.

The advantages of the two plans are that students can reach objectives either by their preferred means or by being taught how to use the only means provided. Periodic use of both plans will address various dualities as well as encourage their combined use.

Conclusion

A word of caution and a final suggestion may be necessary for teachers preparing to implement the above plans. Matching instructional approaches with preferred learning modes is only half the job. It takes cognizance of dualities and promotes easy access to objectives. It also provides students with experiences that permit them to use their particular strengths. It does not, however, address the reconciliation or balancing aspect.

We therefore recommend that specific non-preferences be noted, and that teachers complete the job by requiring students to broaden themselves in these areas. Students whose preference is markedly random may need some guidance in order to focus their attention. Similarly, sequentially-oriented students need to be encouraged toward more unstructured, random thinking. Those with abstract orientations profit from exposure

Learning Styles: Differences Which the Profession Must Address

Anthony F. Gregorc
The University of Connecticut
Storrs, Connecticut

HOW do we really learn? Recent research is beginning to address itself to this problem. Gregorc calls for a move away from a simplistic view of the nature of learning to one which takes into account the learning capabilities or styles of each student. He outlines the four basic patterns as concrete-sequential (CS), abstract-random (AR), abstract-sequential (AS), and concrete-random (CR). Gregorc concludes with an admonition for educators to re-consider their viewpoints on the nature of learning, to consider multiple approaches in our teaching, and above all to talk to students and share our objectives with them.

The education profession has talked about individual differences and the need for variety in curricula, instruction, and goals, but there is no clear-cut dedication to them as yet. Indeed many of us still appear to operate from a nature-of-learning basis which is simplistic. This base is most appropriately characterized by Arthur Jensen's "average child concept" which states:

> The average child concept is essentially the belief that all children, except for a rare few born with severe neurological defects, are basically very much alike in their mental development an capabilities, and that their apparent differences in these characteristics as manifested in school are due to rather superficial differences in children's upbringing at home, their preschool and out-of-school experiences, motivations and interests, and the educational influences of their family background. All children are viewed as basically more or less homogeneous, but are seen to differ in school performance because when they are out of school they learn or fail to learn certain things that may either help or hinder them in their school work. If all children could be treated more alike early enough, long before they come to school, then they could all learn from the teacher's instruction at about the same pace and would all achieve at much the same level, presumably at the "average" or above on the usual grade norms. (Jensen, 1969)

Such a concept, when held (often unconsciously) by an educator, affects his attitudes about individual differences and particularly about the need for any form of diagnosis, prescription, or purposefully designed variations. Such an educator feels he is doing his job well by providing every child with the same experiences delivered in the same or similar way to all. This is equal opportunity! He believes that variance in amounts of learning for the vast majority of students is due to effort expended, the degree of familial support or modeling of good educational practices in the home, or the amount the student's prior teachers covered. Since these variables are often suggested: Increase the number of study halls, provide more rewards for taking rigorous courses, increase federal programs such as Head Start, introduce new courses for "lazy" students, have counselors improve their placement techniques, and supervise and evaluate colleagues who are allegedly failing to prepare the students properly. There is little hint of personal need to look at the learning capabilities of each individual student.

This concept of learning and its consequent attitudes and behavior are having effects upon student growth and self-concept development. From intensive interviews, we have found that children, adolescents, and adults learn easier in certain environments and under certain conditions than they do in others. And they feel varying degrees of comfort ranging from pleasure through pain in various situations. These effect their achievement in school and occur *within* school. When asked if they informed their educators of their feelings, many reported that they were told that their perceptions were foolish, that "it was all in their head," "where there's a will there's a way," or that they were "just not academic material." These responses clearly were having a deleterious effect upon many students.

The repeated references to differences in their behaviors in varying environments lead to an analysis of characteristics of learners which manifest in what came to be called learning styles. Such styles are clusters of behaviors which give clues as to learning capabilities which lie deep within. Hundreds of observations and interviews with people yielded behaviors which reflected several qualities of the mind which were affecting the learning of individuals.

For the purpose of this paper, two sets of the qualities will be addressed: Concrete and Abstraction orientation, and Sequential (linear) and Random (curvilinear) ordering orientations. Through observations we found that these qualities formed distinct learning patterns and styles. They were:

Concrete-Sequential (CS) Abstract-Sequential (AS)
Abstract-Random (AR) Concrete-Random (CR)

Every person in the study demonstrated behavioral use of all four styles which may account for the assumption that we all learn in the same way. However, closer analysis revealed that ninety-five percent (95%) expressed definite preferences or natural affinities for one or two manners of transacting in classrooms. This supported the claims of ease and comfort in some environments and not in others.

To aid the reader's understanding of the various styles encountered using the two sets of qualities, the following descriptors are offered:

The Concrete-Sequential Learners

The Concrete-Sequential Learners displayed the following characteristics. They:

- preferred concrete examples and objects to theories and abstractions. They liked actual, not contrived, experiences, *e.g.*, work-study rather than simulation.
- preferred teaching techniques which presented information in successively connected parts. They liked structure which ranged from specific seating to clear-cut objectives to testing on specific days.
- preferred someone to be in-charge. They expected a teacher/teachee relationship and felt that something was amiss when the roles were violated by a "guiding" teacher or "take-over" type students.

- demonstrated extraordinary developments of one or more of the five physical senses.
- [illegible] the ability to separate facts, data, and activities into categories of right and wrong, and black and white. True/false type tests were appreciated.
- applied literal meaning to verbal and written statements. They took words at their "face value" and often had difficulty understanding jokes or metaphorical suggestions for changes in their behaviors.
- expected objective pay-off and reacted to grades, gold stars, green stamps, *etc.* They disliked busy-work which would "not count."
- expected to perform well without verbal encouragement. They expected immediate reproof when mistakes were made.
- were able to approach tasks consisting of discrete parts without knowing the "big picture." They were able to delay gratification until the project was completed.
- followed step-by-step directions well and gave careful attention to detail, and
- displayed a low tolerance for distraction, *i.e.*, they needed to be able to concentrate on the task-at-hand without noise or peripheral activities in their environment.

The Abstract-Random Learners

The Abstract-Random Learners showed the following characteristics. They:

- preferred experiences which were subjective, affective, and abstract.
- preferred learning options as opposed to a single approach. They preferred guidelines with minimal structure and would at times become disruptive in tightly structured situations.
- preferred a guide-like or collegial relationship with students and adults. Cross-aged tutoring and shared decision-making in curricular activities was "natural" to them.
- demonstrated high empathy as evidenced through their ability to read body language, assess another person's "vibes," and put themselves into the other person's shoes.
- demonstrated the ability to view a gestalt and were often perplexed by black/white, true/false responses given by other types of learners. They preferred oral exams and subjective essays.
- applied subjective analysis to verbal and written statements. In constant search of symbolic and personal meaning, they would at times see extraordinary beauty, and yet at other times, read into situations more than was there.
- were inner-motivated and used personal criteria for achievement. Concrete external rewards were not considered appropriate indicators.
- expected to perform well and looked for subjective signals of approval and disapproval. A smile or touch on the arm or a happy face on a graded paper were cues sought by the AR.
- were not prone to follow directions carefully. Deadlines, exact amounts, and careful detail were often casually dismissed by the phrase "close enough."
- displayed resistance toward projects or activities which were approached with the phrase, "Have faith..you'll need this someday," or "Stick with it..it'll all work out in the end." They preferred an overview of activities rather than assuming that pre-programmed steps would take them ahead.
- displayed a reasonably high tolerance for distraction. With the ability to focus attention, most AR's expressed a need to have a non-quiet atmosphere and were known to "randomize" restrictive study halls and carefully-monitored libraries.

The Abstract-Sequential Learners

The characteristics of the Abstract-Sequential Learners were as follows. They:

- preferred to deal with abstractions via models, ideas, concepts and symbols. In many cases they avoided direct concrete experiences in favor of those which were vicarious.
- preferred techniques and activities which were sequential, substantive, logical, rational and structured. They outlined well and sought out main points.
- were especially adept in seeing models and the "big picture." Along with this was the extraordinary ability to decode written and spoken symbols. These learners read better and listened to lectures better than any of the other types.
- expected their teachers to bring expertise to the classroom and anticipated having to reflect the teacher's teachings as a sign of their having learned.
- demonstrated analytical and evaluative abilities. These learners exhibited many of the higher level cognition traits listed in Bloom's taxonomy.
- sought referent authority and documentation of ideas and preferred tests which required clear-cut identification of ideas, facts, and rational conclusions.
- expected pay-off in terms of grades or positions based upon their knowledge. They usually had very high expectations of themselves.
- were able to delay gratification *if* they viewed their present work as a portion of an overall scheme which they recognized.
- followed reasoned guidelines well. They displayed little acceptance of lock-step or amorphous directions, and
- they displayed a low tolerance for distraction of any type.

The Concrete-Random Learners

The Concrete-Random Learners had the following characteristics. They:

- preferred concrete application of ideas through examples and practice.
- preferred instructional options and alternative approaches to reach objectives. They could, however, follow common guidelines and curricular experiences well.
- preferred teachers who both instructed and also served as guides. Their base of operation appeared to be both cognitive and affective.
- demonstrated insight in multiple situations. Intuitive leaps were made by these people which resulted in creative formulations of various types.
- had extraordinary ability to make relationships and compare and contrast in ways which cause problems on tests or situations which called for "the" answer.
- reacted to both internal and external rewards at the same time. An unearned grade was bothersome to these learners.
- were problem-solvers, application oriented and trial and error learners. Experimentation was a key manner of learning. For

afraid to try new things.

- disliked step-by-step procedures and often started a project or taking a test without reading directions. Often, they truly knew what was required BUT sometimes they were wrong!
- preferred a stimulus-rich environment with people and other resources available at call. They could concentrate well in a moderately distractive environment.

Conclusion

The variances in styles found in the interviews and observations permit the drawing of inferences which the profession must, in my estimation, address. First we must reassess our individual and collective viewpoints on the nature of learning. The "average child concept" is wrong! Sustaining it only gives solace to those who cannot or will not change their teaching behavior. Second, we must consider multiple approaches in our teaching presentations. There are indeed "different strokes for different folk." To use singular approaches may show that we are doing with the mind what "leeching" physicians did with the body years ago. Thirdly, we need to talk with students and verify differences within ourselves. We need to share objectives with them, let them use their styles whenever possible, and also teach them how to recognize environmental demands and to "stretch" and/or cope with demands and styles which are different from their own.

These are major challenges to our profession. They hold within them opportunities for our profession to grow up and break from our present state of inertia. Most of all, however, addressing differing qualities of the mind can aid individuals to grow and to enjoy psychological and physical well-being. Indeed, a mind is a terrible thing to waste!

Source: Reading through Content, Edited by R. Vacca and J. Meagher, Storrs, CT: The University of Connecticut, 1979.

THE GIFTED CHILD QUARTERLY, Winter, 1977, Vol. XXI, No. 4

YOUR STYLE OF LEARNING AND THINKING
Form A

Georgia Studies of Creative Behavior
Department of Educational Psychology
University of Georgia
December 1975

INSTRUCTION: On the answer sheet provided, describe your style of learning and thinking by blackening the appropriate blanks. Try to describe your own strengths and preferences as accurately as possible.

1. (a) not good at remembering faces
   (b) not good at remembering names
   (c) equally good at remembering names and faces.

2. (a) respond best to verbal instructions
   (b) respond best to visual and kinesthetic instructions
   (c) equally responsive to verbal and visual/kinesthetic instructions.

3. (a) able to express feelings and emotions freely
   (b) controlled in expression of feelings and emotions
   (c) inhibited in expression of feelings and emotions.

4. (a) playful and loose in experimenting (in cooking, art, athletics, writing, research, teaching, etc.)
   (b) systematic and controlled in experimenting
   (c) equal preference for playful/loose and systematic/controlled ways of experimenting.

5. (a) preference for dealing with one problem or variable at a time
   (b) preference for considering several problems or variables simultaneously
   (c) equal preference for sequential or simultaneous consideration of problems/variables.

6. (a) preference for multiple-choice tests
   (b) preference for open-ended tests which have no single "right" answer.
   (c) equal preference for multiple-choice and open-ended tests.

7. (a) good at interpreting body language
   (b) poor at interpreting body language; dependent upon what people say
   (c) equally good at interpreting body language and verbal expression.

8. (a) good at thinking up humorous things to say and do
   (b) poor at thinking up humorous things to say and do
   (c) moderately good at thinking up humorous things to say or do.

9. (a) preference for kinesthetic stimuli (movement and action)
   (b) preference for auditory, verbal stimuli
   (c) equal preference for kinesthetic and auditory stimuli.

10. (a) objective in obtaining information or making judgments
    (b) subjective in obtaining information and making judgments
    (c) equally objective and subjective in obtaining information and judgments.

11. (a) playful approach in solving problems
    (b) serious, all-business approach to solve problems
    (c) combination of playful and serious approach in solving problems.

12. (a) mentally receptive and responsive to environmental stimuli
    (b) essentially self acting and creative mentally
    (c) equally receptive and self acting mentally.

13. (a) able to improvise freely with whatever is available.
    (b) at times able to improvise with whatever is available
    (c) dislike improvising; prefer working with proper materials.

14. (a) like for experiences to be planned, structured
    (b) like to keep things open, fluid, spontaneous
    (c) equal preference for planned and open experiences.

15. (a) very inventive
    (b) occasionally inventive
    (c) never inventive.

16. (a) think best while lying flat on back
    (b) think best while sitting upright
    (c) equal preference for thinking while lying down and sitting upright.

17. (a) preference for thinking concretely
    (b) preference for abstract thinking
    (c) equal preference for concrete and abstract thinking.

18. (a) highly psychic
    (b) moderately or occasionally psychic
    (c) little or no psychic ability

19. (a) frequently use metaphors and analogies
    (b) occasionally use metaphors and analogies
    (c) rarely use metaphors and analogies.

20. (a) usually get many new insights from analogies
    (b) occasionally get new insights from analogies.
    (c) rarely ever get new insights from analogies.

21. (a) preference for simple problems
    (b) preference for complex problems
    (c) equal preference for simple and complex problems.

22. (a) responsive to emotional appeals
    (b) responsive to logical, verbal appeals
    (c) equally responsive to emotional and verbal appeals.

23. (a) preference for dealing with one problem at a time
    (b) preference for dealing with several problems at a time
    (c) equal preference for dealing with problems sequentially of simultaneously.

24. (a) grasps best well established, certain information
    (b) grasps best that which is still elusive and uncertain
    (c) equal preference for certain and uncertain truth.

25. (a) preference for critical and analytical reading

THE GIFTED CHILD QUARTERLY, Winter, 1977, Vol. XXI, No. 4

    (b) preference for creative, synthesizing reading
    (c) equal preference for critical and creative reading.

26. (a) preference for intuitive approach in solving problems
    (b) preference for logical approach to solving problems
    (c) equal preference for logical and intuitive approaches to solving problems

27. (a) enjoy using symbols in solving problems (algebra, models, etc.)
    (b) dislike of using symbols in solving problems
    (c) neither enjoy nor dislike using symbols in solving problems.

28. (a) preference for solving problems logically
    (b) preference for solving problems experientally
    (c) equal preference for solving problems logically and experientially.

29. (a) skilled in giving verbal explanations
    (b) skilled in showing explanations by movement and action
    (c) equally able to give verbal explanations and explanations by action & movement.

30. (a) preference for teaching by verbal exposition
    (b) preference for teaching by visual presentation
    (c) equal preference for verbal exposition and visual presentation.

31. (a) primary reliance on language in remembering and thinking
    (b) primary reliance on images in remembering and thinking
    (c) equal reliance on language and images.

32. (a) preference for analytical thinking
    (b) preference for synthesizing
    (c) equal preference for analysis and synthesis.

33. (a) enjoyment of talking and writing
    (b) enjoyment of drawing or manipulating objects
    (c) equal enjoyment of talking/writing and drawing/manipulating.

34. (a) easily lost even in familiar surroundings
    (b) easily find directions even in strange surroundings.
    (c) moderately skilled in finding directions.

35. (a) more creative than intellectual
    (b) more intellectual than creative
    (c) equally creative and intellectual.

36. (a) preference for research and experimentation involving single variables
    (b) preference for multivariate research, experimentation
    (c) equal preference for single and multiple variable research, experimentation.

Write only on separate answer sheet

****

YOUR STYLE OF LEARNING AND THINKING
(Form B)

Department of Educational Psychology
University of Georgia
May, 1976

INSTRUCTIONS: People differ in their preferred ways of learning and thinking. On the answer sheet provided, describe your style of learning and thinking by blackening the appropriate blanks. In each item, three different styles of learning or thinking are described. Select the one that describes most accurately your strength or preference.

1. (a) not good at remembering faces
   (b) not good at remembering names
   (c) equally good at remembering names and faces

2. (a) respond best to verbal instructions
   (b) respond best to instruction by example
   (c) equally responsive to verbal instruction and instruction by example

3. (a) able to express feelings and emotions freely
   (b) controlled in expression of feelings and emotions
   (c) inhibited in expression of feelings and emotions

4. (a) playful and loose in experimenting (in sports, art, extra curricular activities, etc.)
   (b) systematic and controlled in experimenting
   (c) equal preference for playful/loose and systematic/controlled ways of experimenting

5. (a) prefer classes where I have one assignment at a time
   (b) prefer classes where I am studying or working on many things at once
   (c) I have equal preference for the above type classes

6. (a) preference for multiple-choice tests
   (b) preference for essay tests
   (c) equal preference for multiple-choice and essay tests

7. (a) good at interpreting body language or the tone aspect of verbal communication
   (b) poor at interpreting body language; dependent upon what people say
   (c) equally good at interpreting body language and verbal expression.

8. (a) good at thinking up funny things to say and/or do
   (b) poor at thinking up funny things to say and/or do
   (c) moderately good at thinking up funny things to say or do

9. (a) prefer classes in which I am moving and doing things
   (b) prefer classes in which I listen to others
   (c) equal preference for classes in which I am moving and doing things and those in which I listen

10. (a) use factual, objective information in making judgments
    (b) use personal experiences and feelings in making judgments
    (c) make equal use of factual, objective information and personal experiences/feelings in making judgments

11. (a) playful approach in solving problems
    (b) serious, all-business approach to solving problems
    (c) combination of playful and serious approach in solving problems

12. (a) mentally receptive and responsive to sounds and images more than to people
    (b) essentially self acting and creative mentally with groups of other people.
    (c) equally receptive and self acting mentally regardless of setting

13. (a) almost always am able to use freely whatever is available to get work done
    (b) at times am able to use whatever is available to get work done
    (c) prefer working with proper materials, using things for what they are intended to be used for

14. (a) like for my classes or work to be planned and know exactly what I am supposed to do
    (b) like for my classes or work to be open with opportunities for flexibility and change as I go along
    (c) equal preference for classes and work that is planned and those that are open to change

15. (a) very inventive
    (b) occasionally inventive
    (c) never inventive

16. (a) think best while lying flat on back
    (b) think best while sitting upright
    (c) think best while walking or moving about.

17. (a) like classes where the work has clear and immediate applications (e.g. mechanical drawing, shop, home economics)
    (b) like classes where the work does not have a clearly practical application (literature, Algebra, history)
    (c) equal preference for the above type of classes

18. (a) like to play hunches and make guesses when I am unsure about things
    (b) rather not guess or play a hunch when in doubt
    (c) play hunches and make guesses in some situations

19. (a) like to express feelings and ideas in plain language
    (b) like to express feelings and ideas in poetry, song, dance, etc.
    (c) equal preference for expressing feelings and ideas in plain language or in poetry, song, dance, etc.

20. (a) usually get many new insights from poetry, symbols, etc.
    (b) occasionally get new insights from poetry, symbols, etc.
    (c) rarely ever get new insights from poetry, symbols, etc.

21. (a) preference for simple problems
    (b) preference for complex problems
    (c) equal preference for simple and complex problems

22. (a) responsive to emotional appeals
    (b) responsive to logical, verbal appeals
    (c) equally responsive to emotional and verbal appeals

23. (a) preference for dealing with one problem at a time
    (b) preference for dealing with several problems at a time

(c) equal preference for dealing with problems sequentially simultaneously

(a) prefer to learn the well established parts of a subject
(b) prefer to deal with theory and speculations about new subject matter.
(c) prefer to have equal parts of the two above approaches to learning

(a) preference for critical and analytical reading as for a book review, criticism of novie, etc.
(b) preference for creative, synthesizing reading as for making applications and ng information to solve problems
(c) equal preference for critical and creative reading

(a) preference for intuitive approach in solving problems
(b) preference for logical approach to solving problems
(c) equal preference for logical and intuitive approaches to solving problems

(a) prefer use of visualization and imagery in problem solving
(b) prefer language and analysis of a problem in order to find solutions
(c) no preference for either method

(a) preference for solving problems logically
(b) preference for solving problems through experience
(c) equal preference for solving problems logically or through experience

(a) skilled in giving verbal explanations
(b) skilled in showing by movement and action
(c) equally able to give verbal explanations and explanations by action and vement

(a) learn best from teaching which uses verbal explanation
(b) learn best from teaching which uses visual presentation
(c) equal preference for verbal explanation and visual presentation

(a) primary reliance on language in remembering and thinking
(b) primary reliance on images in remembering and thinking
(c) equal reliance on language and images

(a) preference for analyzing something that has already been completed
(b) preference for organizing and completing something that is unfinished
(c) no real preference for either activity

(a) enjoyment of talking and writing
(b) enjoyment of drawing or manipulating objects
(c) enjoyment of both talking/writing and drawing/manipulating

(a) easily lost even in familiar surroundings
(b) easily find directions even in strange surroundings
(c) moderately skilled in finding directions

(a) more creative than intellectual
(b) more intellectual than creative
(c) equally creative and intellectual

(a) like to be in noisy, crowded places where lots of things are happening at once
(b) like to be in a place where I can concentrate on one activity to the best of my lity
(c) sometimes like both of the above and no real preference for one over the other

37. (a) primary outside interests are aesthetically oriented, that is, artistic, mu dance, etc.
(b) primary outside interests are primarily practical and applied, that is, wo scouts, team sports, cheerleading, etc.
(c) participate equally in the above two types of activities

38. (a) vocational interests are primarily in the general areas of business, econ and the hard sciences, i.e., chemistry, biology, physics, etc.
(b) vocational interests are primarily in the general areas of the humanitie soft sciences, i.e., history, sociology, psychology, etc.
(c) am undecided or have no preference at this time

39. (a) prefer to learn details and specific facts
(b) prefer a general overview of a subject, i.e., look at the whole pictur
(c) prefer overview intermixed with specific facts and details

40. (a) mentally receptive and responsive to what I hear and read
(b) mentally searching, questioning, and self-initiating in learning
(c) equally receptive/responsive and searching/self-initiating.

SCORING KEYS

Form A

Item	*A*	*B*	*C*	*Item*	*A*	*B*
1	L	R	I	19	R	I
2	L	R	I	20	R	I
3	R	I	L	21	L	R
4	R	L	I	22	R	L
5	L	R	I	23	L	R
6	L	R	I	24	L	R
7	R	L	I	25	L	R
8	R	L	I	26	R	L
9	R	L	I	27	R	L
10	L	R	I	28	L	R
11	R	L	I	29	L	R
12	L	R	I	30	L	R
13	R	I	L	31	L	R
14	L	R	I	32	L	R
15	R	I	L	33	L	R
16	R	L	I	34	L	R
17	R	L	I	35	R	L
18	R	I	L	36	L	R

Where L = left, R = right and I = integrated or balanced

Form B

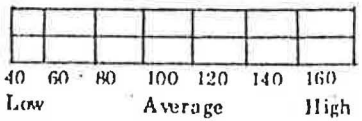
Item	*A*	*B*	*C*	*Item*	*A*	*B*	*C*
1	L	R	I	21	L	R	I
2	L	R	I	22	R	L	I
3	R	L	L	23	L	R	I
4	R	L	I	24	L	R	I
5	L	R	I	25	L	R	I
6	R	L	I	26	R	L	I
7	R	L	I	27	R	L	I
8	R	L	I	28	L	R	I
9	R	L	I	29	L	R	I
10	L	R	I	30	L	R	I
11	R	L	I	31	L	R	I
12	R	L	I	32	L	R	I
13	R	I	L	33	L	R	I
14	L	R	I	34	L	R	I
15	R	I	L	35	R	L	I
16	R	L	I/R	36	R	L	I
17	R	L	I	37	R	L	I
18	R	L	I	38	L	R	I
19	L	R	I	39	L	R	I
20	R	I	L	40	L	R	I

REPORT ON YOUR STYLE OF LEARNING AND THINKING

Name:_____ Date:_____

Style	Raw Score	Standard Score
Right		
Left		
Integrated		

Standard Score



Abbreviated Summary of Specialized Cerebral Hemisphere Functions

Right	*Left*
recognizing/remembering faces	recognizing/remembering names
responding to visual and kinesthetic instructions	responding to verbal instructions
playful and loose in experimenting	systematic and controlled in experimenting
responds with emotion/feeling	inhibited in responding emotionally
interprets body language	dependent upon words for meaning
produces humorous ideas	produces logical ideas
processes kinesthetic stimuli	processes verbal stimuli
subjective processing of info.	objective processing of info.

playful in solving problems	serious, systematic in solving probl
self acting; concrete thinking	receptive; abstract thinking
likes improvising	dislikes improvising
highly psychic	not psychic
high use of metaphors and analogies	little use of metaphors and analo
responsive to emotional appeals	responsive to logical, verbal appe
deals simultaneously with several problems at same time	deals with one problem at a time, sequentially
creative, synthesizing, associating in reading	critical and analytical in reading
intuitive in solving problems	logical in solving problems
gives information through movement, gesture, etc.	gives instructions verbally
uses images in remembering	uses language in remembering
grasps uncertain truths	grasps certain, established truths

SELECTED READINGS

Arnheim, R. *Visual thinking.* Berkeley, CA: University of California Press, 19

Bennett, J. The difference between right and left. *American Philosophical Quar* 1970 7, 175-191.

Bogen, J. E. Some educational aspects of hemisphere specialization. *Educator,* 1975, *17,* 24-32.

Bogen, J. E. The other side of the brain: Paris I, II, and III. *Bulletin of the Angeles Neurological Society,* 1969, 34, 73-105, 135-162, 191-203.

Brandwein, P., & Ornstein, R. The duality of the mind. *Instructor,* January 1 *86*(5), 54-58.

Bruner, J. *On knowing: Essays for the left hand.* Cambridge, Mass.: Harvard Un sity Press, 1962.

Buck, C. Knowing the left from the right. *Human Behavior,* 1976, *5* (6), 29-

Castillo, G. A. *Left-handed teaching: Lessons on affective education.* New Y Praeger Publishing, 1974.

Galin, D. Implications for psychiatry of left and right cerebral specialization. *Arc of General Psychiatry,* 1974, *31,* 572-583.

Gazzaniga, M. Recent research on hemispheric lateralization of the human b Review of the split-brain. *Educator,* May 1975, *17,* 9-12.

Gazzaniga, M. *The bisected brain.* New York: Appleton-Century-Crofts, 1970

Kiester, E., & Cudhea, D. W. Robert Ornstein: A mind for metaphor. *H Behavior,* 1976, *5*(6), 16-23.

Konicek, R. D. Seeking synergism for man's two hemisphere brain. *Phi Delta Ka* 1975, *57,* 37-39.

Ornstein, R. E. *The psychology of consciousness.* New York: Viking Press, 1

Ornstein, R. D. (Ed.) *The nature of human consciousness.* San Francisco, Calif.: Freeman, 1973.

Samples, R. E. Are you teaching only one side of the brain? *Learning,* 1975, 30 30.

Samples, R. E., Charles, C., & Barnhart, D. *The whole school book.* Reading, Addison-Wesley, 1977.

APPENDIX H -- Delivery Systems

PROGRAM DELIVERY

Self-contained classes

Description: The gifted/talented students in one grade are grouped together in one room which combines the regular program with "gifted". In some cases, where there are not enough children in a school to make up an entire classroom of gifted/talented in one grade, the children are bussed to a school where this is possible.

Advantages: The gifted/talented students are together all of the time and can benefit from a high degree of interaction with one another. While being able to move ahead at a faster pace, they can also be involved in enrichment activities which provide greater depth and breadth in any pertinent subject.

Disadvantages: Participants do not get to interact with other students not in the program during school hours. This method of program delivery usually accomodates the intellectual, academic, and creatively gifted/talented more than the others.

Subject Separation

Description: For those who are gifted/talented in specific subject areas. Classes can be developed with content at a greater level of depth and breadth. Classes are organized so that students are separated only for that time, i.e. in an elementary program, the student would be going into another classroom for reading, math, etc. and in a secondary school, classes would be scheduled to accommodate levels of ability. This could also be interpreted as to include Early College Placement, Advanced Placement, or Honors programs, etc.

Advantages: The person with higher capabilities can be with subject peers and can be taking classes which match his or her abilities.

Disadvantages: Scheduling may be difficult and sometimes in elementary and junior high schools, the student will end up in a separated group for all subjects in order to make that scheduling easier. Higher standards for grading may discourage students from participating.

Resource Room

Description: A specific room is designated as the "resource" room where students in the gifted/talented program can go for differentiated program activities.

Advantages: Classroom teachers can have help with those special projects which require special materials, expertise, and time. If the facilitator of the gifted/talented program is in one school all of the time, he or she can become better acquainted with classroom teachers and therefore be a better help to them.

Disadvantages: Because it is "there", it may be scheduled for odd times during the day. While this is more convenient for the classroom teacher, the child does not have enough time to become involved in anything deeply enough to accomplish at a higher level.

Itinerant teacher

Description: Essentially the same role as the resource room teacher, except that this person is traveling between or among schools to provide help for gifted/talented children.

Advantages: District makes maximum use of one person, especially if there are few children at one school. Equipment and materials do not have to be duplicated at each school.

Disadvantages: Much time is spent in travel. It is difficult to get to know individual classroom teachers because of less time at each school and

therefore provide services. Transporting materials and equipment can be difficult and time consuming and make organization a problem.

Minicourses

Description: Short-term, high intensity courses in any subject. Can be used at most grade levels, exclusive of primary.

Advantages: High concentration which focuses on specific interest of gifted/talented student. Usually handled by mentors or other expert in field of interest so may impose extra expense upon program.

Disadvantages: Takes students out of regular class (unless scheduled) Provides scheduling problems. May incur extra expense if using outside experts.

Independent Study

A student focuses on a subject and pursues independently. Usually with a managing teacher who provides parameters and methodology for the independent study. Used in junior and senior high school.

Advantages: Provides students with an opportunity to develop an interest to the length and breadth of intensity desired. Good for the self-initiated learner.

Disadvantages: Working alone may be difficult for the learner. Little input from others. Requires organization from the managing teacher.

Mentorship

An expert from the outside of school or the usual classroom situation works with an individual or small group in specific area of interest.

Advantages: Opens up a whole new area of expertise to the student. Allows the student to see how professionals do their work in the real world

Disadvantages: Requires organization by the facilitator for successful carrying through of the experience. Requires extra expense.

Extracurricular

The student acquires skills, knowledge, etc. while not on school time. Can include before/after school, Saturdays, summer school, and independent resources. (4-H, scouts, lessons, etc.)

Advantages: Does not interfere with set schedule of the school. Places learning in a non-school situation.

Disadvantages: Puts interests and abilities of the gifted and talented into a category beyond or outside of school. Penalizes students in that they have to do regular classroom work plus that which meets specific needs.

Acceleration

Moving up: In elementary school--skipping a grade. In secondary--taking advanced placement, early college entry, etc. (see Separation by Classes)

Advantages: Provides student with physical, emotional and intellectual maturity with an alternative to staying in a classroom with children who are progressing at a normal rate of speed in various subject areas.

Disadvantages: Going on the assumption that the gifted/talented child is best served in the classroom in which his or her interests and abilities will be fully recognized and challenged, this method of delivery may not take into consideration the physical and emotional maturity of the child. Also, the child may soon catch up with and pass the students in the new classroom and soon be back into the same situation--thinking differently, more divergently and at a higher level than the other students in the classroom.

Note: Methods of program delivery should be chosen because they meet the needs of the students rather than for convenience. It is recommended that program delivery come out of needs assessment rather than perceived needs for convenience and ease of delivery.

Team Teaching

Teachers with different areas of expertise work with children in those areas. This can be done in the regular classroom using regular personnel.

Advantages: Does not pull the gifted/talented child from the regular classroom. Does not add the expense of special personnel.

Disadvantages: Isolates, possibly, the g/t student from others in the program. Runs the risk of not differentiating for the gifted/talented. Teachers are frequently too busy with other students to give attention to the gifted/talented student in their classroom, even in a team teaching situation. No contact hours with a g/t facilitator.

Teacher Consultant

The gifted/talented facilitator acts as a consultant to the regular teacher on matters which concern the gifted/talented student. He or she provides expertise, perhaps materials, and methodology for the teacher.

Advantages: The g/t child does not have to leave the regular classroom for special help.

Disadvantages: The gifted/talented facilitator has no direct contact hours with the g/t student. The student may not have any really differentiated time to be involved in advanced activities which match his or her abilities and interests.

Research Projects

Students are provided with topics and "contracts" which they are to develop in a manner in keeping with their individual abilities and interests.

Advantages: Can be done as part of the regular program. Gives the student something to do while the rest of the class is finishing the day's work. Gives the student something to start in the regular classroom and go to the resource teacher for advice and help.

Disadvantages: It is not certain that gifted/talented students benefit from research papers or projects unless that is their area of ability or interest. Independently done, for the most part, this type of project tends to isolate the g/t student from the rest of the class. The research project, unless designed to answer a real question, solve a real problem, or be directed toward a real audience, is often something to keep the student busy. To meet any real need he or she might have, the focus might very well be in a different direction. Little or no contact time with the g/t facilitator

Enrichment Kits

Activities which are packaged and put out by one of the many commercial companies in this field. The packages are usually focused upon the divergent thinking and/or creativity areas of giftedness. They are completely packaged, usually with lesson plans, suggested follow-up, etc.

Advantages: The teacher in the regular classroom can make use of these kits without having special knowledge about them.

Disadvantages: It is doubtful that the materials in enrichment kits are good only for gifted. The way in which they are often used makes them fragmented. They do not relate to the regular program in most instances. They pass for gifted/talented programs but in actuality are not meeting the needs of those children who have interests and abilities in other areas. Little or no contact time with the gifted/talented facilitator.

SOME POSSIBLE

GIFTED/TALENTED PROGRAM ROLES AND RESPONSIBILITIES

the community

Support the program.

Provide mentors

Understand the program.

Act as part of advisory committee.

Communicate program to the rest of the community

the student

Attend scheduled g/t classes and/or events.

Complete regular classroom and g/t activities.

Develop self-awareness and understanding

Participate in planning and evaluation of learning experiences within the g/t program.

Develop interests and abilities

the classroom teacher

Provide exploratory activities for the gifted student

Understand the characteristics of the gifted/talented

Assist students in developing area of interest and/or ability.

Help the student develop a positive toward his or her abilities.

Participate in the planning process for the educational plan of the student.

Support the gifted/talented program

Help in scheduling the student for appropriate time

Serving on the CST

the special education director

Designating different roles for different individuals

Understanding the underlying concept of programs for the gifted and talented.

Communicating with the superintendent

Reporting to the school board

Budget

Program evaluation

the facilitator

Provide management and methodology for student investigations.

Help the student focus on investigations

Search out appropriate audiences for student projects.

Communicate with parents as to program content and direction.

Act as liaison between the school and the community

Provide a differentiated program and styles of teachings.

Involve teachers in the program

Serving on the CST

the principal

Deciding on personnel

Communicating to staff and to other administrators.

Evaluating progress

Serving on the CST

the gifted/talented coordinator

Responsibility for the program and its development

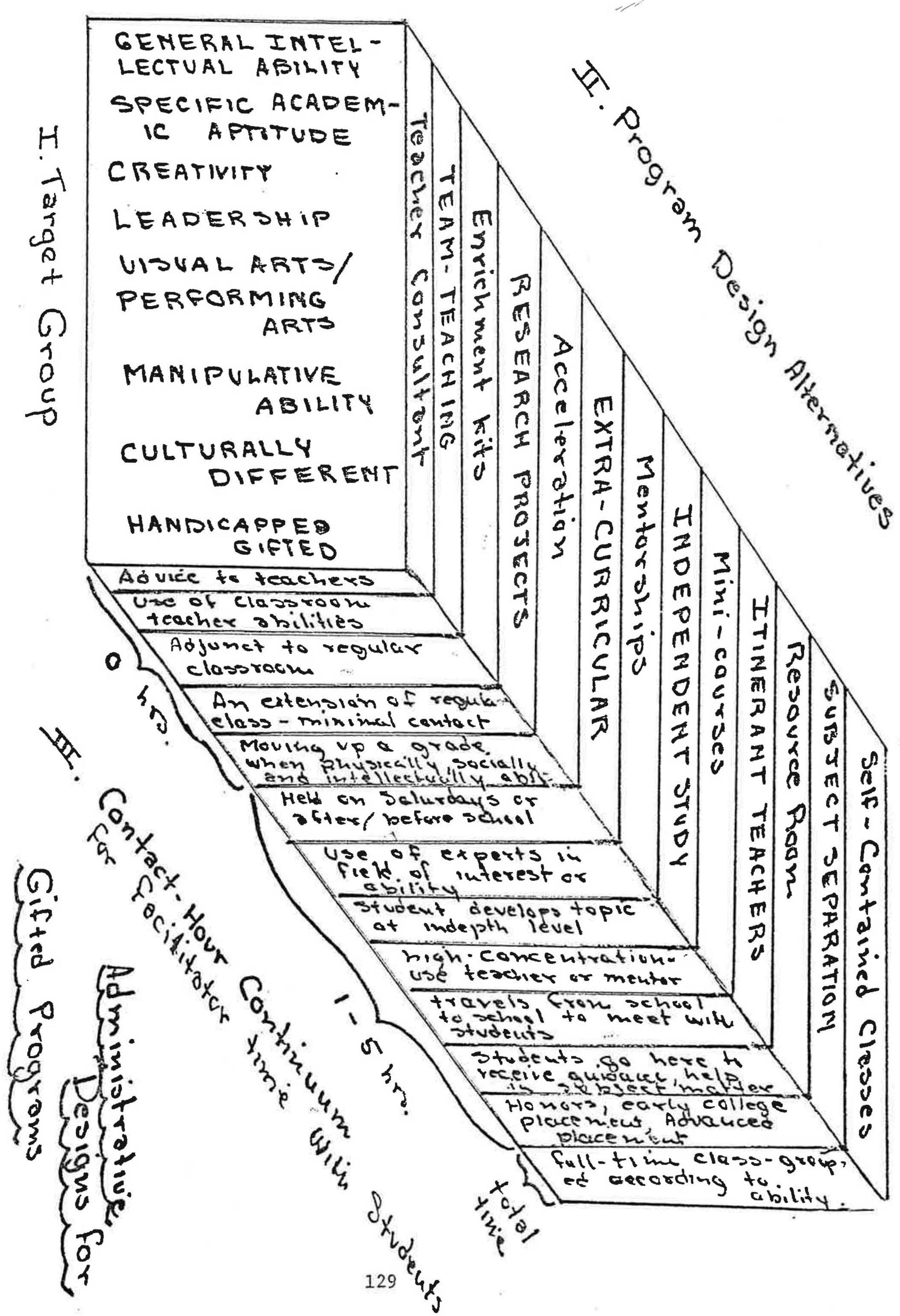
Evaluation of the time, structure and staff of the program

Providing inservice education

Purchasing of materials and equipment.

Program evaluation

The Child Study Team?


GENERAL INTELLECTUAL ABILITY
SPECIFIC ACADEMIC APTITUDE
CREATIVITY
LEADERSHIP
VISUAL ARTS/ PERFORMING ARTS
MANIPULATIVE ABILITY
CULTURALLY DIFFERENT
HANDICAPPED GIFTED
I. Target Group
II. Program Design Alternatives
Teacher Consultant
TEAM-TEACHING
Enrichment kits
RESEARCH PROJECTS
Acceleration
EXTRA-CURRICULAR
Mentorships
INDEPENDENT STUDY
Mini-courses
ITINERANT TEACHERS
Resource Room
SUBJECT SEPARATION
Self-Contained Classes
Advice to teachers
Use of classroom teacher abilities
Adjunct to regular classroom
An extension of regular class - minimal contact
Moving up a grade when physically, socially and intellectually able
Held on Saturdays or after/before school
Use of experts in field of interest or ability
Student develops topic at indepth level
high-concentration-use teacher or mentor
travels from school to school to meet with students
Students go here to receive guidance, help in subject matter
Honors, early college placement, Advanced placement
full-time class-grouped according to ability
0 hr.
1-5 hrs.
total time
III. Contact-Hour Continuum for facilitator time with Students
Administrative Designs for Gifted Programs

PROGRAM RESPONSIBILITIES

Provide an enriched individualized program

Assist students in planning, organizing, and evaluating learning experiences

Become knowledgeable about the unique needs of the gifted

Evaluate student progress and products

Involve community

Know differences in gifted population

Beginning an assessment of needs

Designating of different roles for various staff members or other individuals

Responsibility for the program and its development

Need for action

Assessment of concerns alternatives, and goals

Understanding of underlying concept of programs for the gifted

Involvement of parents, students, and staff

Establishment of priorities for implementation

Evaluation of time, structure, and staffing

Documentation of the program

Individual Education Plans

Providing inservice education

Obtaining resources and mentors

Designing curriculum

Deciding on personnel and materials

Planning evaluation procedures

Communicating to staff, parents, students, and other administrators.

Provide an enriched, individualised program for the gifted/talented

Demonstrate diverse methods of instruction appropriate for the gifted

Assist students in product development

Provide financial, statistical, and descriptive reports as needed to develop, maintain, and account for the school program.

Meet regularly with parents to explain program to them

Provide management and methodology for gifted students

Stimulate interest in and concern for the gifted

Organize and help select Advisory Committe

Work cooperatively with State agencies

Screen, develop, and provide appropriate materials for the gifted

Find appropriate audiences for the product of the gifted

Provide an enriched extension of the regular curricular subjects for gifted student in intra- or extra classroom settings

Write gifted/talented instructional object for students

Plan and implement inservice for teachers

PROGRAM DIFFERENTIATION AT THE SECONDARY LEVEL

A qualitatively different curriculum is based on, and designed to meet, the unique characteristics and needs of the gifted student. It is a curriculum specified in a written plan which is measurably different from the curriculum offered the student who is not identified as gifted. Alaska state law requires that a student participating in gifted education shall be enrolled in a program or receive services beyond the level of those ordinarily provided in the regular school program.

A qualitatively different curriculum should:

1. Meet state and district requirements as outlined in the state handbook.

2. Operate flexibly; i.e., the principal, teacher, and Child Study Team should determine how, when and where the allotted time will be spent, and not be bound by district requirements designed to meet the needs of students in the regular program.

3. Provide a differentiated method of instruction in terms of:

   -Units or courses specifically designed for the gifted

   -Added depth and scope of learning experiences in units or subject areas normally covered by regular students in regular classes

   -Degree of individualized instruction, i.e. using the contract method

   -Innovative or varied approach to a unit of instruction or subject such as self-initiated projects, field studies, and off-campus research or classes

   -Management of the class, e.g., seminar-type room, individualized instruction, cluster grouping, less teacher lecture, and more student direction and participation in discussion, as well as more opportunity for exploration by the student.

STUDENTS' OPTIONS FOR MEETING CREDIT REQUIREMENTS

An independent study program at the high school level can provide for freedom and flexibility in the design of personalized courses of study for the highly gifted student. Each student can be encouraged to help plan the structure of his/her course of study and to request advice or assistance as needed in developing the course. Each student program is highly individualized, with the possibility of credit being earned in various combinations of the optional modes which are delineated below.

1. The student may elect to attend classes on a regular five-period per week basis. In this case his work is supervised by and his grade is given by the teacher to whom he reports. This can take the form of an advanced class, or an individualized program within a regular class.

2. The student may choose to work by contract arrangement with a subject area teacher. A staff teacher works out a plan with the student and the g/t facilitator, setting goals, requirements and schedule. The student may attend classes one, two or three periods each week. He may do much of his study independently, working within the structure of the contract. The academic grade is determined jointly, in conference, by the staff teacher, the student, and the g/t facilitator. This format can also be applied to a mentorship situation.

3. The student may choose to earn certain credits by independent study. The role of the facilitator in this case is primarily that of resource person, tutor, and evaluator. The academic mark is determined by self-evaluation, written and oral examination, or by evaluation of a product.

4. Many of the independent study students attend credit or audit classes at community colleges and universities, and some attend university extension courses in the evening. These students may receive high school credit for their work at the college, and the grade transferred accordingly.

THE PRODUCT ON WHICH THE STUDENT IS EVALUATED MAY TAKE THE FORM OF A FILM, A VIDEO TAPE, SLIDES, PAINTINGS OR OTHER AUDIO-VISUAL MATERIAL. THE PRODUCT MAY BE A MORE TRADITIONAL TERM PAPER, ESSAY OR PROJECT. STUDENTS ARE ENCOURAGED TO FIND INNOVATIVE WAYS TO DISPLAY THEIR FINISHED PRODUCTS, AND TO SEEK A 'REAL' AUDIENCE RATHER THAN THE CONTRIVED AUDIENCE OF A SCHOOL (FOR EXAMPLE, AN ART SHOW AT A GALLERY OR MUSEUM: PUBLICATION IN A MAGAZINE RATHER THAN THE SCHOOL PAPER).

OTHER CONSIDERATIONS IN AWARDING CREDIT

Students do not like and should not be expected to do "extra work for nothing". Their payoff should be in the form of academic credit, awarded for efforts or in recognition of their achievements. Some suggestions for doing this within the confines of "graduation req uirements" are:

1. Allow credit in the area in which a student completes an independent study, i.e., satisfactory completion of a science unit would be awarded science credit (not "elective") to be used in lieu of a required science class.

2. Students could "challenge" requirements by taking a test or by scoring at or above an agreed upon level on a standard achievement test. Thus they would be allowed an additional elective and time to pursue a special interest area. For example, a student scoring two grade levels above his peers in biological sciences might be awarded credit in biology without taking the course. At that time, he could pursue an independent study in an appropriate area.

3. Students could earn more than one credit for a regular class in which they were doing advanced work.

APPENDIX I -- Mentors

Council for Exceptional
Children Monograph

DEVELOPING A COMMUNITY BASED MENTORSHIP PROGRAM FOR THE GIFTED AND TALENTED

Produced for the Office of Gifted and Talented, US Office of Education, Department of Health, Education, and Welfare by The Council for Exceptional Children.

What is a mentor?

A mentor is one who already stands within the context of a particular tradition, discipline, profession, or craft and who serves as an advisor, guide, teacher, and role model to those who seek access to the mentor's world and skills.

What characteristics should a mentor have?

There are no set rules, especially since the mentorship plays such a highly individualized educational role. In general, however, the mentor:

- Is usually but not always an adult.
- Has a special skill, interest, or activity which engages the learner's interest.
- Is able to guide the learner toward personally rewarding experiences where challenges can be met, skills developed, problems solved, and relationships established.
- Is flexible, helping the learner review and revise activities and, when necessary, goals.
- Is often a role model for the learner. The mentor can impart an understanding of life style and attitudes different from those the student might ordinarily meet.
- Is, above all, interested in the student as a learner and as an individual.

Why are mentors good people to work with gifted and talented students?

Mentors are particularly valuable to the development of the gifted and talented student because they provide models of competency, exploration, commitment to a field or discipline, and caring. Mentors can be found in all occupations and endeavors.

How can mentors be identified?

As a first step, those developing community based mentorship programs should conduct a critical assessment of both their program's goals and the resources of the community in which it will operate. Community agencies, e.g., governmental, educational, and service, are usually excellent places to start. These agencies often compile lists of individuals who act as resources in their particular occupational areas. Many of these people are delighted to serve as mentors to gifted and talented students who express similar interests. Labor, business, industrial, and professional groups can be approached as well as individual artists, doctors, lawyers, and craftsmen.

Are mentorship programs good for all gifted and talented students?

No. Mentorships are usually inappropriate for elementary school age students. Secondary students who are beginning to explore vocational and career interests or who have consuming hobbies are often good candidates for mentorship programs. Candidates should be sufficiently mature to be able to benefit from a one to one relationship with an adult, be able to take both guidance and criticism well, and should show evidence of ability in independent study situations.

What is required of those involved in mentorships?

The most important quality of mentorship is a shared understanding of the tasks, responsibilities, and functions to be performed by both the mentor and student. This requirement is best met through a careful matching of student and mentor by the program coordinator, director, or liaison person.

What is the role of the director of the program?

The most effective director or intermediary is one familiar with the community, its institutions, and its human resources. The intermediary should conduct interviews to ascertain students' goals and interests and to help students clearly define their objectives in becoming involved with a mentor. The intermediary will also interview prospective mentors, assessing not only their ability to relate to young people but also their goals for the mentorship, to narrow the range of possible placements. The major purpose of both sets of interviews is to clarify expectations. The intermediary will then combine objective data, such as learner interests and abilities, schedule and transportation problems, and mentor skills and

resources, with subjective factors, such as personality traits. Placement can then be proposed.

How do I start a mentorship program for gifted and talented students?

There is no ideal formula. To a large extent, the nature of the community and the resources within it will determine how a given program will be developed. However diverse, all mentorship programs should provide opportunities for gifted and talented students to:

- Pursue their interest at an appropriate level of difficulty.
- Explore career options through the real world of work experiences.
- Determine which of many talents and abilities holds the most promise for developing a career or life interest.
- Interact with other highly talented peers and adults.

To gather support for these goals, you may want to speak to community groups, parents, school personnel, and likely sources for mentors. Inform them that mentorship services need not be secured through a programmatic approach but can be established on an individual basis. When gathering support, it is important to remember that:

- A mentorship program can help bring the school and the community together.
- Student work habits will be developed and strengthened.
- The innovative nature of the program can be used to generate educator interest
- The program is not unstructured rather it seeks to restructure the educational context.
- The program will be carefully evaluated.

What features of community based mentorship programs make them attractive?

- Gifted and talented students often need a latitude and depth of involvement that is not always available within the framework of the normal classroom.
- Gifted and talented students need settings where their curiosity can thrive among adults who can respond to it wholeheartedly.
- Gifted and talented students need to test the limits of their understanding, skills, and expression in the real world and to have the opportunity to create, examine, and test the products of their special vision with adults who can challenge them.
- Gifted and talented students of ethnic and racial minorities and lower socioeconomic environments often go unrecognized because the schools to which they are assigned lack appropriate resources.

How do I evaluate a community based mentorship program?

Like all educational programs, community based mentorship programs should be evaluated for their effectiveness and for the sake of improving them. Planning for evaluation of the program should begin at the same time as planning for the program itself. Evaluation as an afterthought is usually too little and too late and seldom provides the opportunity to make timely adjustment during the course of a program's life. If you are unfamiliar with how to approach an evaluation, the basic resources by Worthen and Saunders (1972) or Renzulli (1975) provide a survey of basic evaluation principles.

RESOURCES

For more information on community based mentorship programs write to your state education agency's consultant for gifted and talented programs or to:

The Council for Exceptional Children
1920 Association Drive
Reston, VA 22091

Readings in the area which may be helpful are:

Boston, Bruce. *The sorcerer's apprentice: A course study in the role of the mentor.* Reston, VA: The Council for Exceptional Children, 1976.

Campbell, F. P., Dunette, M. D., Lawler, E. E., & Weick, K. E. *Managerial behavior, performance and effectiveness.* New York: McGraw Hill, 1970.

National Commission on Resources For Youth. *In-service training manual for developing community based mentorships for gifted and talented.* Unpublished manuscript, 1977.

Renzulli, Joseph. *A guidebook for evaluating programs for the gifted and talented.* Ventura, CA: Office of the Ventura County Superintendent of Schools, 1975.

Worthen, B., & Saunders, J *Educational evaluation: Theory and practice.* Worthington, OH: Charles A. Jones, 1972.

Prepared by Bruce Boston, Fairfax, Virginia.

The material in this fact sheet was prepared pursuant to Contract Number 300-76-0530 from the Office of Gifted and Talented, US Office of Education, Department of Health, Education, and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the US Office of Education and no official endorsement by the US Office of Education should be inferred. (1/78)