TEACHING INTELLECTUALLY GIFTED STUDENTS

THESIS

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The problem with which this study is concerned is the methods and techniques that are utilized by some teachers in the identification of a gifted student. This study has a threefold purpose. The first is to discuss the plight of some of our valuable human resources as manifested by the gifted in the American educational structure. The second is to present and contrast the current approaches to conserving these resources. The third is to project some possible trends in meeting the needs of the gifted segment in American schools.

This study concludes that the field of teaching the gifted has been exploited by educators, and that there is very little likelihood in replacing the suggested methods and techniques entirely by new ones. Though there is little chance to replace all the suggested methods and techniques, there is sufficient room for expansion and internal renovations in the American educational mode of arrnagement.

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CHAPTER I

INTRODUCTION

Throughout the history of mankind, we find that in almost any society there is the demand for various trained talents while at the same time many of these talents are being wasted. This phenomenon exists the world over, but some countries are certainly less wasteful than are others. The United States is apparently producing a much higher proportion of trained talents than are other countries because of the abundant resources and the belief that

> . . . a democratic society has an obligation to provide opportunities for individuals to develop and use their talents, and the interests of society require that such opportunities be made attractive, but no one in a democracy can be compelled to use the opportunities available to him . . . to insist that equal opportunities must always take the form of identical experiences is unrealistic . . . they are also unfair. . . . The democratic idea can be most fully attained when every individual has the opportunity for educational experiences commensurate with his abilities and for vocational responsibilities commensurate with his qualifications. [1]

But there are still educators who feel that "American education does not do as good a job with gifted children as it might and should

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[1]The Educational Policies Commission, Education of the Gifted (Washington, D. C.: National Education Association of the United States, 1970), pp. 4-5.

do."[2] So if there are still gifted students who remain undiscovered or untrained, the nation is still throwing away opportunities for national excellence.

During recent years, because of abundant financial resources and facilities, the United States has shifted in emphasis

> . . . from a national defense Sputnik approach, which viewed the gifted as a resource or a commodity, to concern for the full development of the individual child for his own sake. . . . This approach seeks to develop creative and compassionate human beings who have a reservoir of useful knowledge, skill in high intellectual processes, and values which direct them toward that which is noble and good.[3]

The provision for gifted students is probably one of the latest developments in the history of education. Although some practices, such as grade skipping, were introduced far back in educational history, the vast majority of the programs which we know were developed within the past decade or two. When the American Association for Gifted Children was organized in 1946,[4] most educators still did not pay too much attention to it. But the idea slowly broke through its

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[2]Nelson B. Henry, ed., Education for the Gifted (Chicago: University of Chicago Press, 1958), p. 4.

[3]Paul D. Plowman, "Programming for the Gifted Child," Exceptional Children, XXXV (March, 1969), 545.

[4]Elizabeth Paschal, Encouraging the Excellent (New York: The Fund for the Advancement of Education, 1970), p. 7.

barriers, and in the mid-50's two other organizations were established. They are the National Council for the Gifted and the National Association for Gifted Children.[5] During the past decade, the change in attitude favoring special provisions for the gifted has been dramatically fast. In 1951, the Fund for the Advancement of Education was established by the Ford Foundation. As a result of critical research, numerous educators began to suggest new methods and techniques to challenge the gifted; thus, hundreds of schools less hesitantly provided special programs for the gifted. Today, almost every educator feels that it is necessary to provide preparatory measures for the gifted. But at the same time, they also believe that the present methods and techniques are far from adequate and much work is yet to be done.

So while there are still teachers who employ the discovered and suggested methods for the first time, there are also many educators committed to that area of research which seeks to identify methods and techniques which would most effectively challenge the learning and creative potentials of the intellectually gifted students. Although numerous methods and techniques have already been studied and recommended, still no one method or technique is appropriate to all situations. To make the provisions for the intellectually gifted, a

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[5] Ibid.

teacher has to be well informed about a variety of methods and techniques and be sensitive enough to make those selections which will best enhance the learning processes.

The Problem

The problem with which this study is concerned is the methods and techniques that are utilized by some teachers in the identification of an intellectually gifted student.

Purpose of the Study

The purposes of the study were threefold: (1) to discuss the plight of some of our valuable human resources as manifested by the intellectually gifted in the American educational structure; (2) to present and contrast the current approaches to conserving these resources; and (3) to project some possible trends in meeting the needs of the intellectually gifted segment in American schools.

Importance of the Study

Research indicates to us that the methods through which the teacher conducts the various learning activities within and without the classroom have a very important bearing on how those activities will be received by the students. The teacher actually exerts influence on the students in the learning situation. How much the teacher knows about the methods of conducting the learning activities, how much he

knows about how the students will react to the methods he employs, and how well he can control the situation become very important in teaching. When we talk about the gifted, these factors become even more important. A teacher who deals with the gifted needs some special methods and techniques in addition to the understanding of the psychology of individuals and knowledge of how individuals differ in growth and development.

There is very little doubt that every individual is unique, and no two students learn exactly the same way. That is why no one method can be recommended for universal adoption. Different schools, different groups, and even different individuals may require different methods. This is especially so in dealing with the gifted.[6] In this study, an attempt was made to employ techniques so that the teacher would become more knowledgeable in meeting the needs and objectives of gifted students.

Definitions of Terms Used

The following definitions were developed for the purposes of this study.

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[6]The Fund for the Advancement of Education, Evaluation Report No. 2 (New York: Author, 1967), foreword, cited by Jane B. Raph, Miriam L. Goldberg, and Harry A. Passow, Bright Underachievers (New York: Teachers College Press, 1966), p. 6.

Gifted: this term shall be applied to those students who possess the following characteristics:

1. Cognition--discovery, awareness, rediscovery, or recognition of information in various forms; comprehension or understanding;

2. Memory--retention of information in any form;

3. Production:

   a. Divergent production--generation of information from given information, where the emphasis is upon variety of output from the same source as in creative thinking;

   b. Convergent production--generation of information from given information, where the emphasis is upon achieving unique or conventionally accepted or best outcomes;

4. Evaluation--reaching decisions or making judgments concerning the goodness of information in terms of criteria of identity, consistency, and goal satisfaction.[7]

Achievement tests: achievement tests shall be interpreted as standardized group measuring devices designed to evaluate

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[7]Guilford and Merrifield, cited by Floyd M. Dunn, ed., Exceptional Children in the Schools (New York: Holt, Rinehart, and Winston, Inc., 1973), p. 184.

academic skills such as reading, arithmetic, and English.[8]

Concept formation: concept formation, indirectly stated in the term "gifted," shall be interpreted as meaning the ability to discover and define the common properties or meanings of objects or events.[9]

Identification: the term "identification" shall be interpreted as meaning the process of internalization of characteristics of another person or group; modeling behavior after that of the other.[10]

Intelligence: the term "intelligence" shall be interpreted as meaning the ability to think and act in adaptive ways; the term also encompasses complex mental abilities, such as thinking, reasoning, and problem solving.[11]

Limitations of the Study

This study was limited in the following ways,

1. As there was no field survey conducted for this study, the sources of information were therefore limited to material available

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[8]Walter B. Barbe, ed., Psychology and Education of the Gifted (New York: Appleton-Century-Crofts, 1965), pp. 480-90.

[9]Ibid.

[10]Ibid.

[11]Ibid.

in the forms of books, periodicals, and educational reports related to the study.

2. This study was limited to dealing mainly with the situation when this study was written. Therefore the longitudinal value was also limited in the same manner.

3. This study was limited because the continuous discoveries of scientific methods and devices for teaching the gifted may at any time make some of the suggested provisions less useful.

4. This study was meant to be an introductory description and not an original product.

CHAPTER II

IDENTIFICATION OF THE GIFTED

There are some reactionary people who hold the view that to identify the gifted is a waste of time and energy. They believe that if one possesses an inherent talent, it will somehow flourish and manifest itself miraculously. They further argue that if the gifted child is not identified, he will not meet opposition, ridicule, and scorn and will have a better opportunity to fully develop his potential. This kind of view is unethical as well as illogical. The history of the training of the gifted can reveal the fallacy of the view and render sufficient justification for the identification and training of the gifted. Actually, the main concern of our eduational system is none other than to educate and identify the students as a preparation for different kinds of vocations.

Perhaps the weak aspects of identification lie not in handling of the discovered "gifted child" but in the fact that there exist many "undiscovered" gifted children. If this statement is valid, it is necessary to organize a better program through which we can identify the gifted effectively.

The procedures for identifying students should be varied and diversified. Identification is not an impossible job because almost every gifted child will provide you with some means of discovering his giftedness; but it is not an easy job because a full-scale discovery of a child's potential is almost impossible and an accurate prediction of the extent of giftedness is almost equally impossible. Norma E. Cutts suggests that a systematic observation method should be used. She says,

> The purpose of systematic observation is to make sure that you are not missing any clues to brightness. It involves knowing what information you would like to have about each pupil and then deliberately checking his performance under conditions which yield the information.[1]

This method sounds very difficult to accomplish because one may think that it requires a lot of additional work. But Cutts feels that it is not quite so. If the teacher can pay good attention to observe the day-by-day life of the students in the classroom, then he will have sufficient ground for judgment.

The Rockefeller Brothers Fund report on The Pursuit of Excellence also indicates that it actually does not require too much

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[1]Norma E. Cutts, Teaching the Bright and Gifted (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1967), p. 17.

additional efforts to identify the gifted. The report suggests that,

> 1. We must not make the mistake of adopting a narrow or constricting view of excellence. Our conception of excellence must enhance many kinds of achievement at many levels. . . .
>
> 2. We must not assume that native capacity is the sole ingredient in superior performance.
>
> 3. We must recognize that judgments of difference in talent are not judgments of differences in human worth.[2]

The Rockefeller Brothers Fund report is concerned with the American folklore of equality and brotherhood. It asserts that all criteria for identification should be based on the understanding that all men are equal and the fact that all men are also different. The report concludes that it is possible to cultivate the ideal of excellence without degrading the moral values of equality.

In recent years, there have been some notable changes in ideas regarding program of identification. There is an ever-increasing number of educators who bitterly object to over-use of testing programs as a means of identifying the gifted. Apparently

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[2]Rockefeller Brothers Fund, The Pursuit of Excellence: Education and the Future of America (New York: Doubleday, 1968), pp. 16-17.

their objection is not without truth. There are numerous evidences which tell us that.

> . . . the quest for easily objectifiable testing and scoring has directed us away from the attempt to measure some of the most precious qualities of individuals and hence to ignore these qualities.[3]

To do away with all the testing programs is just like "throwing away the baby with bath water."

Intelligence Tests

Intelligence tests judge what a student can accomplish in school, not what has been accomplished. Lewis N. Terman, editor of the Stanford-Binet, defined intelligence simply as "the ability to carry on abstract thinking." The French psychologist Alfred Binet defines intelligence as

1. the ability to take and maintain a definite direction--that is to carry through a course of action once began.
2. adaptability to new situations and new requirements.
3. the power to evaluate and criticize one's own acts.[4]

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[3] Walter B. Barbe, ed., Psychology and Education of the Gifted (New York: Appleton-Century-Crofts, 1965), p. 458.

[4] Henry E. Garrett, Testing for Teachers (New York: American Book Company, 1965), p. 47.

A definition of intelligence simply as the academic ability to do school work is certainly too narrow. It should therefore include all the intellectual abilities in everyday activities, the ability to reason abstractly and to see relationships. When the intelligence tests are applied to high school students, attention should be placed on mental alertness on the abstract level. Although during recent years there is an increasing number of people who like very much to see the intelligence test disappear from the educational scene, there are also those who still have firm faith in it.

The Educational Policies Commission believes that

> . . . the evidence is overwhelming that (1) the level at which an individual is able to score on an intelligence test remains fairly constant throughout later childhood and youth and probably in adult life, too; (2) ability to score on an intelligence test is related to success in school and college; and (3) individuals who make high scores on intelligence tests in youth are much more likely than others to attain distinction in adult life.[5]

Though the accuracy of intelligence tests as to the prediction of academic ability is far from satisfactory, the lack of other testing instruments has made this testing instrument one of the most popular. However, there are many weaknesses which should be recognized. The language barrier, alleged bias against students

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[5]Educational Policies Commission, Education of the Gifted (Washington, D. C.: National Educational Association of the United States, 1970), p. 39.

from lower social strata, physical discomfort, and emotional blocks are some of the common factors which make it impossible for the test to yield accurate predictions.

In administering intelligence tests, the teachers must be aware that there are two commonly used tests--the group intelligence test and the Stanford-Binet. The Stanford-Binet is a more accurate, detailed, and comprehensive appraisal of intellectual level; therefore, it is more useful in diagnosis and prediction.

Achievement Tests

The purpose of the educational achievement test is to discover the progress the students are making in their studies. With the result of the test, the teacher can find out the individual's academic standing in relation to standardized norms and, therefore, it makes possible a more accurate classification of students. Milton J. Gold believes that of all academic achievements,

> . . . the most generally useful in predicting later performance is reading skill. There are various reasons why this should be true. Conventional definitions of intelligence lean heavily on verbal, abstract, symbolic, relational items. All of these are involved in reading. . . . Moreover, since the usual way of validating intelligence and aptitude tests is to judge their predictive value in scholastic performance, it is not strange that reading should be of paramount importance since it is

the basic means to success in the upper academic reaches.[6]

Havighurst, Stivers, and DeHaan, who insist on a systematic discovery of children with a wide variety of abilities, suggest that the instruments for testing achievements should include such non-intellectual talents such as,

1. Social leadership--this can best be done through teachers' ratings and through sociometric devices.
2. The test of art abilities--the screening may be done by a committee of art specialists.
3. Dramatic ability--to be decided by a committee of teachers and a dramatics consultant.
4. Tests for mechanical aptitudes.
5. Testing for musical abilities.
6. Creative writing.
7. Tests of rhythmic ability.
8. Creativity.[7]

The results of such testing are quite conclusive, but they can also be a complicated process as well as a time consuming one. However, such a testing program reveals the recent trend of thinking that no

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[6]Milton J. Gold, Education of the Intellectually Gifted (Columbus, Ohio: Charles E. Merrill Books, Inc., 1965), p. 5.

[7]Robert J. Havighurst, Eugene Stivers, and Robert F. DeHaan, A Survey of the Education of Gifted Children (Chicago: The University of Chicago Press, 1965), p. 4.

longer must a gifted child be gifted in all areas, though there is an increase in considering high ability in science as a requisite for giftedness. The broader concept of giftedness has actually made the program of identification more conclusive as well as leaving less gifted undiscovered.

But there are also many weaknesses which exist in the various achievement tests. The most serious weakness is its inability to measure the various potential abilities of many of the gifted who for some reason have not demonstrated the normal achievement. For instance, the tests do not take into account the curricular differences which usually affect the students in various achievement tests. Furthermore, a teacher can also err in his judgment by confusing his observation with the students' test scores. Some teachers may have preconceived notions in scoring that those students who are always poor in tests are bound to be identified as such.

Interest as a Sign of Potential

In 1958, Ohio State University organized a Science Study Group to identify special abilities. The group selected six manifestations which they used to define talents. The six manifestations are as follows:

1. prolonged pursuit of an interest,
2. great amount of time devoted to an interest,

3. active search for information and ideas--that is, expanding to ever-broadened understandings,

4. multiplicity of related interests in the field,

5. degree of self-initiated interests or concerns,

6. accumulation of an unusual degree of skill and understanding.[8]

When a child has keen interest in certain subjects, ideas, or phenomena, it is usually true that he has some kind of knowledge in those fields. If the interest cannot be dependably used as an instrument for predicting abilities, it is at least reasonable to say that the interest can be justification for further investigation by means of other testing instruments. Gold even feels that "interest" should be used "as a primary identifying factor."[9] He further insists that,

> . . . while certainly the school is helped by interests already developed, the school represents in many areas the only medium through which new interests may be awakened. Before it can assess potential, then, for many individuals and in many areas of study the school must first present rich opportunities for experience. On the basis of a fair chance in specific areas, pupils can develop and show interests which the school can evaluate for future promise.[10]

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[8] J. Richard Suchman, "Inquiry Training in the Elementary School," Science Teacher, XXVII (November, 1960), 42-43.

[9] Gold, Education of the Intellectually Gifted, p. 92.

[10] Ibid., p. 93.

Teacher's Observations

The teacher's observation is also a useful method in determining the relative abilities of students. The teacher can make evaluations when students engage in the many kinds of educational experiences provided both inside and outside of the classroom. Though the "human element" often affects the teacher's judgment, objective observation can sometimes uncover abilities hidden by negative motivational or cultural effects. A perceptive teacher, if well acquainted with the students, can often discern or predict the potentials of the students which otherwise may never be discovered. To do so, the teacher will have to observe many behavioral patterns related to talents so as to draw a more reliable and valid prediction. Robert R. DeHaan and Robert C. Wilson feel that,

> Teacher's observations and judgments are particularly appropriate for identifying talents that are expressed rather consistently but not intensely. . . . For the most effective use of teachers' observations, it is necessary to provide the teacher with specific descriptions of children's behavioral characteristics that are symptomatic of the talent for which he is looking.[11]

The danger of using teaching judgment lies in the fact that it is unstandardized and has varying reliabilities. The total

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[11]Nelson B. Henry, ed., Education for the Gifted (Chicago: University of Chicago Press, 1968), p. 179.

process involves too much psychological determination, and very few or no common criteria are available for such judgment.

Perceptions of Gifted by Others

Students

It is a recognized phenomenon that in many aspects students live in a world which is quite removed from that of the teachers and the school administrators. Within that little world, they usually share most of what they know and almost everyone of them is exposed to his peers to a considerable extent. Therefore, in certain instances, the students can provide information that is usually unavailable to the teachers. The teacher can get the necessary information through sociometric and Guess-who tests, and many other means that the situation permits.

Parents

In many cases, parents know more about their children than anybody else; there is no doubt that parents can also be counted as a source of information. As most parents do not have norms and criteria with which to make accurate evaluations, to accept their information without critical examination will usually result in distortion. As it is somewhat a dangerous instrument for identification, it is

more advisable to use it only as a method of obtaining supplementary data to corroborate the result of other instruments.

Characteristics of the Gifted

The first attempt to study giftedness scientifically was conducted in 1920 by Lewis Terman.[12] In 1925 he published the book Mental and Physical Traits of a Thousand Gifted Children in which he concluded that the gifted children usually possessed superior physical, social, moral, and emotional traits and were also superior in school.[13] The follow-up studies by Terman and his associates indicated that "the gifted person was less subject to physical disfunction and emotional instability than would be expected of individuals in general population."[14] Terman's studies certainly denied the common belief that "the gifted child was physically weak, immature and less attractive than the average child."[15] There are some scholars who hold the view that the gifted children exceed those of lesser mental ability in

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[12]Lewis Terman, "A New Approach to the Study of Genius," Psychological Review, XXIV (July, 1922), 310-18.

[13]Stanley Krippner, "Characteristic of Gifted Children," Education, LXXXVIII (Fall, 1967), 15.

[14]Ibid.

[15]Walter B. Barbe, "Characteristics of Gifted Children," Educational Administration and Supervision, XLI (April, 1965), 207.

height, weight and other physical traits. Laycock and Caylor made a study of the physical traits of both the gifted and the average children and came to the conclusion that "when environmental differences are controlled, the gifted child does not reveal superiority in the physical dimension."[16] Whether or not the gifted have superior physical traits is still not determined. But it is confirmative that the physical differences must be much less than the mental difference.

The gifted student certainly shows superiority over the average student in mental ability and in the ability to assess his environment and deal with it more effectively. M. I. Stein asserts that

> . . . the creative person is less authoritarian and less anxiety-ridden than the non-creative person. In addition, creative individuals, in general, are more independent, more dynamic, more practical, more utilitarian, and better integrated. They show wiser judgment, a greater degree of self acceptance and self knowledge, and have a better sense of humor than non-creative people.[17]

Stein's description is too much centered on determining the nature of the gifted child. Robert J. Havighurst and his cooperators emphasize more on the abilities of the gifted children and describe them as having

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[16] James J. Gallagher and William Rogge, "The Gifted," Review of Educational Research, XXVI (February, 1966), 39.

[17] Krippner, "Characteristics of Gifted Children," p. 16.

1. General intellectual ability and its various components, such as reasoning, verbal skill, mathematical skill, and spatial imagination.

2. Ability in such useful areas as science, mechanics, social leadership, and human relations.

3. Talent in creative arts, such as graphic art, music, creative writing, and dramatics.[18]

Each of the three types of specialized abilities has been proved to vary quantitatively among different individuals, and each is similar to general intelligence in origin, constancy, and function; yet none is identical to intelligence.

A more vivid definition of the characteristics of giftedness is presented by J. P. Guilford who calls it the "structure of intellect," as shown on Figure 1. Each dimension of the cubical model represents one of the modes of variation of the factors. One dimension shows the operations, the second dimension shows the various kinds of products, and the third one shows the contents.

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[18] Havighurst, Stivers, and DeHann, A Survey of the Education of Gifted Children, p. 4.

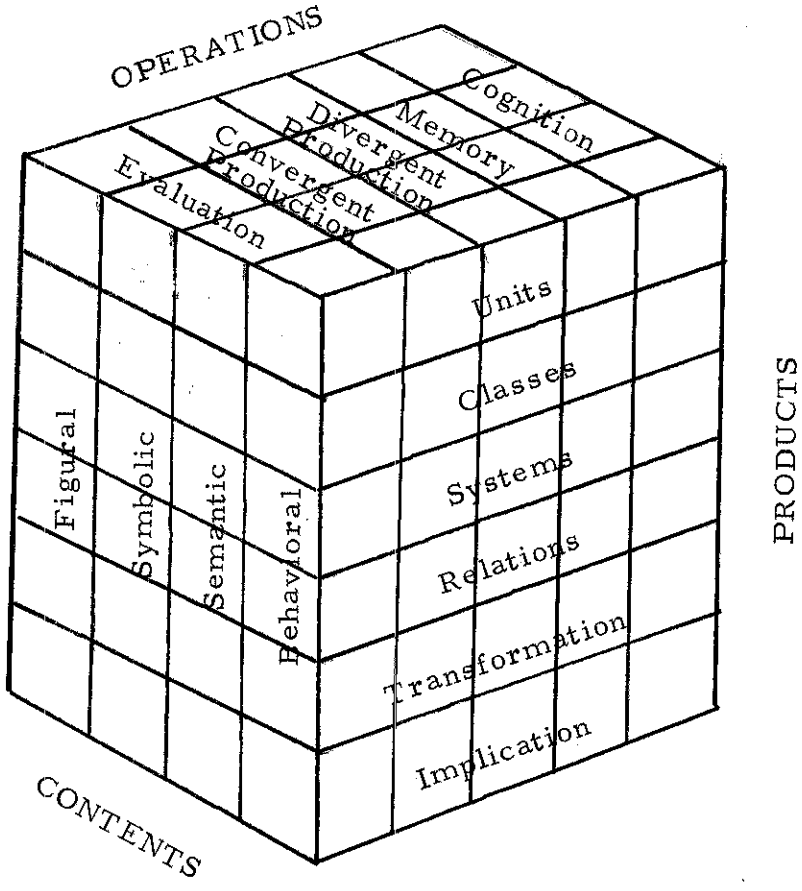

Fig. 1--A cubical model representing the structure of intellect

Source: J. P. Guilford, "Three Faces of Intellect," American Psychologist, XIV (April, 1969), 470.

CHAPTER III

PROVISIONS FOR THE GIFTED

Enrichment

Because a gifted student has deeper insight, broader understandings, keener interest and is capable of doing more school work, he is probably well justified in being given a different kind of learning experience. Through many years of actual experiences in dealing with the gifted students, most educators do agree that enrichment is a proper method. As years have passed, this method has even become a widely accepted one; and probably it is one of the most justifiable methods through which the gifted students can expand in their intellectual, social, and artistic experiences.

The term "enrichment" seems to be very broad and flexible, but there are some specific characteristics toward which this particular method must be geared. Robert J. Havighurst has suggested ten points which he thinks should characterize this teaching method:

1. emphasis upon the creative or the experimental,
2. emphasis on the skills of investigation and learning,
3. independent work, stressing initiative and originality,

4. high standards of accomplishment,

5. cooperative planning and activity that provide opportunity for leadership training and experience in social adjustment,

6. individual attention given by teacher to students,

7. first-hand experiences,

8. extensive reading, and

9. concern with community responsibility.[1]

To a considerable extent, the method and content of enrichment are quite flexible, and different teachers would use many different methods and approaches. Generally speaking, they can be categorized in three dimensions: horizontal, vertical, and supplementary.

1. Horizontal: The horizontal enrichment extends the scope to a much larger extent while at the same time avoiding anything which would be covered at a later grade level.

2. Vertical: The vertical enrichment is to guide the gifted students to proceed with the required school works at a more rapid pace than normal. Therefore the students who are on the program will complete the course requirement earlier and continue with the higher level of learning experience commensurate to their abilities.

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[1] Robert J. Havighurst, Eugene Stivers and Robert R. DeHaan, A Study of the Education of Gifted Children (Chicago: University of Chicago Press, 1965), p. 20.

3. Supplementary enrichment: This method provides learning experiences which are related to the course and yet not directly connected.[2]

The gifted students are mostly mentally hungry. Many of them need something solid to ingest. Some educators argue that anything good for the gifted must also be valuable for typical students. If the stepping up of requirements for the whole class can be accomplished, the gifted must be able to accomplish even more because they can function at higher levels of difficulty, abstractness, and complexity than their classmates. There is always room for the gifted to be provided with some enrichment programs. One of the great advantages of enrichment programs is that the gifted students do not have to be singled out from the class and the program can be carried out while they remain regular members of the class. The school administration will find that providing this program is relatively simple and inexpensive.

To make such special provision requires a considerable amount of time on the part of the teacher. If one refuses to consider this as part of the routine duties of a teacher, he may argue that such a program is unfair to others and therefore cannot be justified.

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[2]William K. Durr, The Gifted Student (London: Oxford University Press, 1974), pp. 122-123.

Other than this, there is little argument which can be reasonably presented against this program.

Ability Grouping

Ability grouping as a teaching method to make special provision for the gifted students has been quite widely used for many decades. This teaching method has been a controversial one from its inception. Generally speaking, most teachers are in favor of grouping as a teaching method, but many leaders of the educational profession emphatically oppose this method on the basis of social and philosophical reasons.

The ability grouping method is "grouping children by ability either in their assignment of classes in a school or in the organization of groups within a class."[3] In classifying students for group instruction, most educators insist that it is better to use both chronological age and mental age--or what amounts to the same thing, both chronological age and IQ.[4] Roughly speaking, there are two ways of grouping: total segregation and partial segregation.

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[3]Milton J. Gold, Education of the Intellectually Gifted (Columbus, Ohio: Charles E. Merrill Books, Inc., 1965).

[4]Educational Policies Commission, Education of the Gifted (Washington, D. C.: National Education Association of U. S. A., 1970), p. 51.

Totally Segregated Grouping

In big cities and metropolitan areas where there are large school populations, it is suitable to have totally segregated schools for the gifted. In the United States, this grouping is very popular in Baltimore, Boston, Chicago, Philadelphia, and New York. These schools are highly selective in admissions, and only those who demonstrate superior academic ability can be admitted. In this kind of school, the entire curriculum can be geared to the learning levels of gifted students since other students are not enrolled. The schools usually provide a challenging, rigorous program designed to take advantage of the intellectual abilities of the gifted students.

In some larger schools, a separate class is established within the framework of the school. This system may or may not have a separate faculty using a different curriculum. Sometimes it may take the form of a special summer session to provide the gifted students with special learning opportunity with or without credit.

Partially Segregated Grouping

A more common way of grouping is the partial grouping method which allows the gifted students to spend part of their school hours in special groups with other gifted students. Some schools offer honors programs in certain selected subjects, whereas others

offer college preparatory courses. Such a grouping may be organized to relate to the regular curriculum. This is done by allowing the gifted students to become involved in another field of study while still partially attending a regular class. For instance, the gifted students in their class are working on assignments in which the gifted already excel.

With regard to making this method a functioning one, Milton J. Gold has suggested ten points which we have to consider before we employ this method.

1. Is it really desirable to limit variability for the purpose of the desired instruction?
2. To what extent will proposed plans actually reduce variability in specified dimensions?
3. Are defensible instruments for selection available?
4. What measures will be used to insure individualization within the group?
5. How will curriculum, methods and materials be differentiated between and within groups?
6. Will methods of selecting groups increase pressure on students toward conformity as they strive to be selected?
7. What are the likely personal effects of grouping?
8. What are the likely social effects of grouping?
9. What provisions will be made to keep grouping flexible in recognition of the unevenness in human development?

10. What arrangements are being made to secure objective evidence on academic, social, and personal effects of the policies under consideration?

There are many advantages as well as disadvantages to the ability grouping method. Some teachers have discovered that the grouping system helps to raise the standards of achievement and each student is challenged to use his intellectual powers to a fuller extent than in the heterogeneous class. Under this situation, the gifted students are more likely to develop more industrious and efficient work habits and avoid the tencencies toward laziness, superficiality, and time-wasting which characterize the student who is not working up to his potential. Furthermore, not only can the gifted students avoid being held back by the slow learners, but also they are challenged to a higher level of accomplishment because of the competition with others of similar ability.

Acceleration

Although the concept of acceleration of gifted students still generates much debate, it has gradually come to be recognized as one of the more effective methods for providing for the gifted students. The Educational Policies Commission takes the view that "acceleration is probably the easiest method from the standpoint

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[5]Gold, Education of the Intellectually Gifted, p. 325.

of both administration and instruction."[6] This method makes possible for the gifted student to move at a pace commensurate with his ability and maturity and to complete his requirements earlier so that his time can be fully utilized.

Generally speaking, there are three ways through which acceleration can be made possible. They are (1) grade skipping, (2) assigning a heavier academic load, and (3) advance placement.

Grade Skipping

Grade skipping is the promotion of students on the basis of past superior performance into classes or grades at a higher level than age would ordinarily allow. This method is actually a traditional means to make differences for the gifted students and is the simplest form of acceleration in elementary and secondary schools. When a student skips, it is highly important to make the necessary adjustments. The teacher has to be well acquainted with the student's abilities and his speed of study so that proper make-up can be provided before and after he enters the new classes. The teacher should watch so that the skipper's achievements in the new classes

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[6] Educational Policies Commission, Education of the Gifted, p. 50.

are at least commensurate with those of the average students, or the advanced student may find himself unable to keep up with the class.

Heavier Academic Load

This method is to let the gifted complete three grades in two years or two grades in one year, a procedure which actually results in a heavier academic load. In most cases, a secondary school student may carry five or six units of academic work each year while other students are carrying four units.

In consequence of carrying this additional load, the gifted students can complete their secondary school education a year or, in some very unusual cases, two years earlier. Those schools which are located close to colleges can also cooperate with the colleges and permit the students to start taking college courses during their senior year if they do not have a full load in the secondary school.

Advanced Placement

Advanced placement is still relatively new in secondary school teaching. It was initiated twenty-three years ago by the Fund for the Advancement of Education. The program offers students an opportunity to complete some of their college work while still in high

school."[7] The gifted students who are involved in this program

> . . . remain in high school, but instead of taking more secondary school work of a traditional type, they take courses for which they will receive college credit or courses that will enable them to take special tests qualifying them for advanced standing in college.[8]

That this program is workable has been proved by the number of students who have been taking part in it throughout the years. In 1953 when this program started, there were only a few score students involved in it. In 1960, there were more than 10,000, and in 1963-64, there were 28,874 students in 2,086 high schools who were involved in 37,929 examinations for college credit.[9]

Students who have unusual abilities are admitted to this program on the basis of grades and teacher recommendations. In most cases, the students take one and no more than two such courses. This program is most challenging to the gifted child, and by giving college credit it allows them to graduate from college earlier.

On the other hand, this program is not without shortcomings. It exacts a high price by (1) diverting the teachers involved into

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[7]E. N. Gerritz, "Advanced Placement," NEA Journal, LIV (January, 1965), 22.

[8]E. Dale Davis, Focus on Secondary Education (Glenview, Illinois: Scott, Foresman and Company, 1966), p. 152.

[9]Gold, Education of the Intellectually Gifted, p. 348.

areas of studies which are not a part of the high school's responsibility, (2) sacrificing a normal and universal curriculum in order to meet some of the particular needs of the elite, and (3) risking undesirable side-effects on the part of the students.

Independent Study

To think that all learning programs must be taught by the teacher and in the regular class with so many hours weekly has been one of the most persistent of all educational myths. The over-commitment to group instruction as the only viable approach to learning has probably been one of the most serious barriers to making modifications. The present situation still reflects the fact that most schools are reluctant to provide independent study because of lack of understanding and because of the rigidity of the planned program. Educators have prophesied that in the "school of the future," more and more time of the gifted students will be spent in independent work outside the classroom. This hypothesis will become easier to understand when teachers realize that "programmed" materials cannot give all the answers to their prayers and when good libraries are available and other materials are plentiful.

Formulation of the independent study program is actually a very time-consuming task of selecting appropriate reading materials,

devising stimulating exercises, and organizing the various materials into a useable package. In selecting the reading materials, content, readability, and availability should first be taken into consideration. Materials should be selected to provide illumination in the areas of research and inquiry. They should be within the range of reading ability of the students without requiring an extensive background knowledge, and they should also be inexpensive and available. The course can be structured to be completed in a semester or a year.

To think that the independent study program requires less time on the part of the teacher is a misconception at the very outset. The teacher should actually work closely with the student and be very well informed as to the progress the student is making. With an inexperienced teacher, it may require even more time. He has to plan exercises to accompany the readings so as to make the students think about what they have read and to apply their knowledge in various ways. Sometimes when students have difficulties, a conference may be needed. In other words, the teacher should work side by side with the students and give continuous help and guidance whenever such needs appear.

There are many good reasons to believe that a gifted student will benefit more from such a method because he is provided with numerous chances in broad reading of good materials, whereas the

programmed lesson learner never reads anything that is not assigned. The gifted student will also be able to free himself from boring classes, and the discipline involved in independent study is valuable preparation for college work.

In preparing a study program such as this, there are some important points which may be worth one's attention.

1. The teacher should define the scope of studies for the student.

2. The teacher should assist the student in drawing outlines for each unit of study.

3. This program can be successful only if the student has access to a good library and sufficient study materials.

4. Industrious students are likely to be more successful in this program than others who are not so.

5. Students involved in the program should maintain normal social relations with the main student body.

6. It is less advisable for students in the lower grades to engage in such a program.

One of the great advantages of this teaching method is the unlimited opportunities of the use of computers in providing for individual differences. It is predictable that in the foreseeable future when computers become popular in schools, the gifted students will

benefit a great deal in independent study with the convenience of electronic devices.

The Teaching of Thinking

Most people will agree that man's ability to think abstractly is the greatest power the universe has ever known. But the dimensions of the human capacity to think have never extended beyond those limits of man's present use of them. Perhaps it might be helpful to embrace the generalization which defines the whole of educational programming as man's attempt to utilize the human brain. However, educators are often so much preoccupied with what and how the student should learn that they neglect the teaching of thinking. As a matter of fact, no task in the total educational program offers more promise than the teaching of thinking.

Some teachers may still wonder how thinking can be taught, but recent research in education has produced enough evidence to support the hypothesis that thinking can be taught. Historians are certainly most familiar with human thought forms. Most historians agree that human thought forms change from generation to generation and from society to society. This phenomenon apparently is not the result of differences of human intelligence quotients, but rather the result of man's ability to assimilate new experiences which modify

his understanding and behavior. It is understandable that thinking can be taught, and it is predictable that in the future, more and more teachers will become aware of the importance of teaching thinking. This method is certainly most rewarding to the intellectually gifted students, and very likely teaching our students to think productively will be identified as the primary task of our educational processes. Recently, Coralie Cogswell of Pennsylvania State University mentioned that,

> A course in the art or science of thinking would seem to be so necessary and valuable for individuals in particular and society in general that it should be an absolute requirement for every student. [10]

Just what is thinking? Burton, Kimball, and Wing believe that

> Thinking results when there is persistent effort to examine the evidence which supports any belief, solution, or conclusion which is suggested for acceptance, together with the implications and further conclusions of the evidence. [11]

Though the teaching of thinking is by no means widely employed by schools as a means of making special provision for the

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[10] Coralie Cogswell, "Students Need a Course in Thinking," Today's Education, November, 1969, p. 60.

[11] William Burton, Roland Kimball, and Richard Wing, Education for Effective Thinking (New York: Appleton-Century-Crofts, 1970), p. 5.

gifted, close attention has already been given to research into the problem of improving the teacher's ability to teach thinking. Recent information has enabled us to understand that individuals differ in thinking power; they also differ in the way they approach anything which requires thought. Bloom and Broder reported their study project at the University of Chicago and

> . . . discovered individual differences in understanding the nature of the problem, in understanding ideas contained in the problem, in the general approach to the solution of problems and in attitudes toward problem solving.[12]

They noted that directions seemingly clear to some students were misleading to others. They also noted that some students had difficulty in organizing their thoughts in any systematic way. Because of these differences, the program of teaching thinking should therefore be varied and be employed according to the need and situation of the individual students. In teaching thinking, the classroom atmosphere must be set up in such a way that the students can have access to freedom in their minds. Richard J. Suchman made some very good suggestions as to how the teacher should handle the classroom situation in order to promote creative thinking:

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[12]Gold, Education of the Intellectually Gifted, p. 188.

1. he must present "open" problems,
2. he must give the learners freedom to operate,
3. he should provide an environment which is responsive to the child's questioning,
4. less teaching of generalizations and conclusions exclusively,
5. less directively more responsibly to the child's searching and theorizing,
6. teaching's function should be more as observing and listening, supporting and extending, selecting and planning.[13]

As teaching of thinking is not simply a mechanical manipulation of information and concepts, the attitude of the teachers is also an important factor in providing a healthy and conducive atmosphere which encourages thinking. Burton, Kimball, and Wing suggest a list of good attitudes necessary for good thinking. These attitudes are as follows:

1. intellectual curiosity
2. intellectual honesty; acceptance of responsibility for the thinking process and its results
3. objectivity
4. intelligent scepticism or suspension of judgment
5. open-mindedness

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[13]Richard Suchman, "Inquiry Training in the Elementary School," Science Teacher, XXVII (November, 1970), 42-43.

6. conviction of universal cause-and-effect relationship
7. disposition to be systematic
8. flexibility
9. persistence
10. decisiveness.[14]

Creative Thinking

There is quite a variety of definitions of "creative thinking" formulated by various authors. Like many other definitions, this one is still in a controversial stage.

Generally speaking, creative thinking is understood as the ability to be flexible, original, fluent, and sensitive in response to ideas and situations. J.E. Drevdahl's definition may be one of the better ones. He says, "creative thinking is the capacity of persons to produce compositions, products, or ideas of any sort which are essentially new or novel, and previously unknown to the producer."[15]

Creativity is a vitally important attribute in the learning processes of the students, and it is even more so with the gifted.

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[14]Burton, Kimball, and Wing, Education for Effective Thinking, pp. 38-41.

[15]John E. Drevdahl, "Factors of Importance for Creativity," Journal of Clinical Psychology, XII (January, 1966), 22.

Actually, creativity and giftedness, though not identical, are related to each other in some aspects. The gifted students generally inherit a higher degree of creativity than others, and sometimes the definitions of giftedness even include creativity. Because creativity has been proved to be cultivatable, the teaching of creativity thus becomes an important method of providing for differences of the gifted. As a matter of fact, the students falling into the category of the gifted by definitions see more problems and are able to conceive more novel and more ingenious questions which prepare the ground for creative thinking.

The factors that lead to creativity in secondary school learning experience are (1) reproducing with imagination what is learned, (2) elaborating what is learned, and (3) going beyond what is learned.

The teacher certainly plays a vital part in leading the students to become creative. Gary A. Davis has made some good suggestions which teachers can adopt for stimulating creativity:

1. providing a creative atmosphere,
2. stimulating thinking,
3. encouraging original thinking,
4. using a discovery method of teaching and learning,
5. changing curricula in the direction of more creative coursework,

6. teaching systematic methods for generating new and creative combinations of ideas.[16]

Critical Thinking

The teaching of critical thinking is by no means new, but it is a neglected area of teaching. This is indeed unfortunate because methods which emphasize critical thinking seem to be those methods best able to render optimum results in educating the gifted student. As the gifted tend to think in comprehensive and complex patterns, it seems that methods of teaching critical thinking actually encourage and nurture the development of the gifted student.

Some educators are cautious about too narrowly defining what it means to teach critical thinking. That is why the Cornell educator, Robert H. Ennis, strongly feels that the situation reflects not only the need for further refinement and universal definition of the concept of critical thinking, but also the development of theory, so that we can have a better understanding of what to deal with and effectively apply to the teaching program.[17]

Just what is critical thinking? Or what does it mean to teach critical thinking? Generally speaking, as Milton J. Gold

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[16]Gary A. Davis, "Teaching Creativity," Clearing House, XLII (November, 1967), 162.

[17]Robert H. Ennis, "Needed: Research in Critical Thinking," Educational Leadership, XXI (October, 1973), 17.

suggests, it should cover logical analysis, inference, deduction, induction, and evaluation.[18]

David Russell defines critical thinking as involving four conditions:

1. knowledge of a field in which thinking is being done,
2. some application of methods of logical analysis or scientific inquiry,
3. taking action in light of this analysis or inquiry,
4. a general attitude of questioning or suspended judgment.[19]

According to Russell, the most effective and simple way to encourage students to think critically is to create a learning situation in which students will question statements and evaluate work products. As critical thinking by itself is complex and requires superior ability, students should be given sufficient time and be able to encounter a wide range of concrete and verbal materials. Russell feels that the learning experience should include

> The process of examining both concrete and verbal materials in the light of related objective evidence, comparing the object or statement with some norm or standard, and concluding or acting upon the judgment then made.[20]

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[18] Gold, Education of the Intellectually Gifted, p. 202.

[19] David Russell, Children's Thinking (Boston: Ginn, 1966), p. 283.

[20] Ibid., p. 285.

Although the field of critical thinking cannot be clearly defined, it is possible and important to determine its scope. Generally, the evaluation of statements, the ability to see relations between statements and the process of evaluation are included in the field. To avoid proceeding in wrong directions and thus falling into pitfalls, Robert H. Ennis has listed nine aspects of critical thinking:

1. judging whether a statement follows from the premises,
2. judging whether something is an assumption,
3. judging whether a simple generalization is warranted,
4. judging whether an observation statement is reliable,
5. judging whether a hypothesis is warranted,
6. judging whether a theory is warranted,
7. judging whether an argument depends on an ambiguity,
8. judging whether a statement is overly vague or overly specific,
9. judging whether an alleged authority is reliable.[21]

Ennis' purpose in listing these aspects is to make the whole idea comprehensible so as to reach a higher degree of conformity to the ordinary sense of critical thinking. In teaching, these aspects are

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[21]Robert H. Ennis, "A Definition of Critical Thinking," The Reading Teacher, XVIII (May, 1964), 599-612.

not to be applied mechanically, but rather with discretion, to the judging of things, men, events, and the relations thereupon.

In another article, Ennis presents the view that there are three basic analytically distinguishable dimensions of the concept of critical thinking:

1. the logical dimension which covers judging alleged relationships between meanings of words and statements,

2. the critical dimension which covers knowledge for judging statements, and

3. pragmatic dimension which covers background purpose on the judgment and the decision which follows.[22]

There are a few points of which the teacher has to take heed in teaching critical thinking. First, it is not enough merely to be critical in the interpretation of facts. The students also should be critical in what they accept as fact. Second, the students must be able to see the relation of things and be highly imaginative. Third, the students must be able to balance healthy skepticism and the necessary degree of respect for authority. Fourth, the teacher must have both patience and leadership ability in order to give continuous help and guidance to the students whenever such needs occur. Finally, the teacher must also know to what extent the gifted students can

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[22]Robert H. Ennis, "A Concept of Critical Thinking," Harvard Educational Review, XXXII (Winter, 1972), 84.

efficiently master the various aspects of critical thinking, and in what curricular patterns the various aspects can be most effectively presented.

Some teachers find it convenient to integrate the teaching of critical thinking with other courses. Others may want to arrange the teaching of critical thinking as component units of some courses. It may also take the name of study in logic.

Problem Solving

The problem-solving approach to learning is not a new method, as it was initiated by Dewey in his five-step definition of problem solving in How We Think (1910).[23] Since then it has been widely accepted by teachers as a teaching method and sometimes as a means of providing for individual differences. But as this method is particularly helpful to those who have superior intellectual ability, it is therefore a suitable method for teaching the gifted, either in a group of individually.

The problem-solving method is actually both an inductive and a deductive way of analyzing knowledge to obtain insight and free play of thought. To start with, the teacher must provide the students with problems, help them to identify the problems, to

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[23]Gold, Education of the Intellectually Gifted, p. 200.

clarify them, and to choose one to work on. Then the teacher should direct attention to and ask questions about the problems which may occur. The students then should be able to draw hypotheses and try to work out ways to support the hypotheses. The processes as defined by John Dewey are as follows.

1. The learner becomes aware of the problem.
2. He defines and delimits the problem.
3. He gathers evidence that may help him solve the problem.
4. He forms a hypothesis of what the solution to the problem is.
5. He tests the hypothesis.
6. He successfully solves the problem or he repeats steps 3, 4, and 5 or 4 and 5 until the problem is solved or until he gives up.[24]

During the process of solving problems, some students are likely to misinterpret directions and work out solutions to the wrong problem. The gifted students are likely to think systematically about the problem and go through a process of reasoning. As the problem-solving method is purely intellectual in nature, the goal aimed at must be to improve the students' thinking. Whether the students can come out

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[24]Leonard H. Clark and Irving S. Starr, Secondary School Teaching Methods (New York: The Macmillan Co., 1967), p. 224.

with solutions is not of vital importance, but the development of his ability to think is important. Milton Gold suggests that the teacher can help the students by

1. calling attention to material in the stimulus situation which the children may not perceive,
2. assiting children in using the inductive-deductive method,
3. encouraging children to raise questions and to check sources,
4. providing opportunities for observation,
5. calling attention to personal factors in situations which may color the use of reason,
6. helping children recognize common errors in logic.[25]

Motivation

"Lack of motivation surely robs us of at least half of the high-level talent that we might otherwise have in other areas, such as art and music."[26] Whether the gifted student can be motivated to fully utilize his giftedness depends largely on the situation in which he finds himself. Psychologists generally believe that motivation takes place when one's perception of the situation leads to goal-

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[25]Gold, Education of the Intellectually Gifted, p. 202.

[26]Robert Havighurst, Eugene Stiver, and Robert DeHaan, A Survey of the Education of Gifted Children (Chicago: The University of Chicago Press, 1965), p. 13.

seeking behavior. Actually there is much a teacher can do to motivate his students. In many cases, to provide remedial therapy for the gifted student who lacks motivation is within the frame of reference of the school. The teacher is one of the most important forces which determine the directions and intensity of the gifted student's motivations. As the process is a highly complex one, and since there is no magic to make the gifted student thirst for knowledge, the teacher simply has to be well informed about the different methods and make them an integral part of the teaching program.

Havighurst, Stivers, and DeHaan believe that lack of motivation results from the following conditions:

1. ignorance of one's potential ability,
2. emotional disturbance,
3. lack of good work habits,
4. parents' indifference or hostility to the particular talents which their children possess,
5. the community's attitude that certain talents are not appropriate for certain groups of children,
6. Lack of opportunity to display talents and be rewarded.[27]

There is a very wide variety of methods which have been suggested or used by teachers or counselors to motivate the gifted.

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[27]Havighurst, Stivers, and DeHaan, A Survey of the Education of Gifted Children, p. 14.

Like most teaching methods, no one method can be used indiscriminately. The following are some of the more commonly used ones.

Building Interests

Most gifted students do in fact have a variety of interests. Very often, the interests are not discovered or nurtured. One of the best ways to motivate the gifted student is to discover and nurture his interests and try to relate his interests to his learning experiences. In trying to discover the interests of the gifted, the teacher must not go beyond immediate interests and even deliberately embark on a program designed to open exciting new vistas to stimulate the innate curiosity of the students. The teacher should also provide opportunities for the student to discover his interests and help to intensify his motivation. Even when the student has interests which deviate from the desirable educational goals, the teacher can direct his innate curiosity into other areas of learning experiences which may be more conducive to his intellectual growth.

If the teacher knows very well about the potential abilities and interests of the gifted student, he can discuss frankly with him the various opportunities the student may have. This is a very direct approach, realistic, and sometimes very effective. The success of such an attempt depends largely on the intensity of the

student's motivations, the outside influences, and the guidance of the teacher. A mature gifted student usually can be guided to work toward most of his attainable goals.[28]

Forming Self-concept

Perhaps the most important factor which can intensify motivation is the student's own appraisal of his ability to achieve goals that he considers worthwhile. It is therefore the duty of the teacher to help him see his potentialities and the possible goals which are within the range of his abilities so that he can form a self-concept which is based on the realization of self in relation to his situation. When he can see what he can accomplish and has the desire to achieve, he then has a good start toward achieving success. Otherwise, if he does not have self-concept of his potentialities, he is likely to lose interest and quit before the goals are accomplished.[29]

Competition

Although competition can be a threat to the slow learners, it usually evokes strong reactions from the gifted. Through many years of experiences, many teachers have found that competition can be a teaching technique through which gifted students can be

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[28] Durr, The Gifted Student, p. 205.

[29] Ibid., p. 203.

challenged to utilize fully their capabilities. Others are hesitant to use this technique because of the resulting side effects. In The Citadel of Learning, Conant says,

> The spirit of competition is not, to my mind, something to be deplored. If kept in bounds by spirit of "fair play," it is a healthy aspect of our tremendous emphasis on sports. There is no reason why the same type of motivation could not be utilized in the study of mathematics and foreign languages, provided, as in athletics, selection of the naturally talented is accepted as a matter of course, and provided that public opinion becomes convinced of the importance of the undertaking.[30]

But we have to be aware that competition is not by itself a teaching method. It is simply a teaching technique and can be used only under certain conditions and within certain teaching methods. William K. Durr believes that competition can effectively promote learning only when three conditions prevail:

1. The student must want to achieve the goal.
2. He must be capable of achieving it and understand his own capability, and
3. He must have to strive for the goals.[31]

Competition actually implies rewards and recognition. There may be prizes given, publicity for especially good work,

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[30]James B. Conant, The Citadel of Learning (New Haven: Yale University Press, 1965), p. 45, cited by Norma E. Cutts and Nicholas Moseley, Teaching the Bright and Gifted (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1967), p. 146.

[31]Durr, The Gifted Student, p. 209.

honor rolls and honor societies--all of which are of interest to the gifted students. Some experienced teachers even feel that competition has a powerful motivating influence on the gifted students.

Any kind of competition brings forth both winners and losers. Although usually only the winners will benefit more from the competition, the after-effects on the loser must also be given good attention. Sometimes mishandling of procedures creates more harm than good.

Utilization of Computers

Although it was only after the Second World War that the digital computer came into being, its enormous working power has convinced human beings that it can work in high speed and accuracy. In many aspects, it actually renders services far beyond what human beings can do. So far, computers have already been utilized in traffics, information, military, data processing, space exploration, and hundreds of other areas. In most advanced countries, the people are already realizing the ever-widening influences of computers on human life. In the United States, there are already over seventy thousand computers in use, and the number and scope of their utilization are ever increasing. One of the most encouraging prospects of computers in the near future is the thrust of computer technology into education. So far, computers already have been employed in

assisting instruction and data processing in support of educational administration. Now the various computer corporations are spending millions of dollars in the research and development of computer-based instruction, and it is expected that in the future it will make a tremendous impact in the total educational system. It will not be too strange to see that in another ten to twenty years, many of the teaching methods, techniques, and curricula will have to be revised to become adaptable to new situations when computers become popular in schools.

One of the great advantages of computer implementation in education is the ability of computers to provide a great and diverse range of possibilities and educational alternatives with which all kinds of individual differences can be made possible for the gifted students according to their abilities and needs. With the help of computers, the school can even construct a master schedule, using all the available personnel and facilities to provide a well diversified educational program for all the students in the school.

The relationship of computer technology to educational instruction is an indication that many of the problems which exist in the various approaches of special provisions for the gifted can be solved, and some new methods may also be available to assist the old ones. As computers can only aid and not replace classroom

teachers, imaginative teachers must be informed and prepared to face the situation of this ever changing world.[32]

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[32]R. C. Atkinson and H. A. Wilson, eds., Computer Assisted Instruction, New York, Academic Press, 1969, p. 437.

CHAPTER IV

PROBLEMS AND RESULTS OF EDUCATIONAL TESTING PROGRAMS

As was stated in the preceding chapter, schools are increasingly making specific efforts to meet the educational needs of gifted children and adolescents. Efforts are being manifested in a variety of ways; the most important are the following: (1) acceleration, (2) enriched educational environment, (3) special grouping, (4) differentiated curricula, (5) enlarged extra-class program at school, and (6) specialized classes and schools. These methods and techniques provide the conditions that foster the growth of gifted students.

Since a chief concern of education is to discover the conditions that foster the development of exceptional abilities and to use the information in educating young people of unusual promise, Chapter III seemed necessary to inform the reader on the conditions that foster the development of exceptional abilities and how they are being applied in the classroom.

The questions to be considered from Chapter III are How can the growth process of the gifted child be facilitated through

school instruction? What sort of mental training is best for students who will in the future be grappling with problems of great complexity? And what kinds of educational programs produce the original thinker, the talented artist, the intellectual leader, and the highly trained professional person?

In this chapter, an attempt is made to show the reader how educators use information in educating young people of unusual promise via educational testing programs. So as to provide objectivity on how educators use information in educating gifted students, the first section of this chapter will focus on the problems and results of educational testing programs. In the latter section of this chapter, the reader will find that research leading to improvement in the means for identifying gifted children has already been initiated, that much remains to be accomplished, and that methods of identifying gifted children now are important but need to be improved.

This chapter will discuss also the following questions:

1. How can creative ability in its many aspects be identified?

2. How can the capacity for leadership be identified and what are the means through which leadership qualities can be developed?

3. What means can be developed to identify gifted persons at various stages of growth and development?

4. What effect does the early identification of a gifted person have on his development?

5. What factors encourage gifted persons to develop their highest potentialities?

6. What is the relationship between a high degree of social ability and a high degree of intellectual ability?

7. What is the relationship between exceptional intellectual ability and ability in special fields, i.e., the arts, economics, government, science, etc.?

8. What is the relationship of environmental factors to the development of giftedness?

9. To what extent are hereditary factors responsible for giftedness?

10. To what extent do factors condition personal achievement other than high intellectual capacity?

Testing Programs

There are now many problems which exist in the various kinds of testing programs. The intelligence test is one that has sometimes raised as many problems as it has solved. Walter B. Barbe says that,

> The numerous factors of intelligence, however, make it apparent that even among those children who manage to score high on an intelligence test, there will still be great homogeneity of mental abilities.[1]

He further says that

> Intelligence tests do not measure all aspects of intelligence, but only a small part of it. Those taking the tests and scoring high are truly gifted, but those making a lower score may or may not be gifted, or they may be gifted but not in the areas which that particular test attempted to measure.[2]

The intelligence tests also take for granted that all students have the same backgrounds. There are many factors which can significantly influence the test score. Kenneth Eells mentioned five major factors: (1) difference in genetic ability, (2) developmental factors, (3) cultural bias in test items, (4) test motivation, and (5) test-work habits or test skills.[3]

Although there are attempts being made to control the background factors, the result has never been satisfactory. The main reason is that the inaccuracy involved in removing the factors usually results in a loss of much of the predictive value.

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[1]Walter B. Barbe, ed., Psychology and Education of the Gifted (New York: Appleton-Century-Crofts, 1965), p. 120.

[2]Ibid.

[3]Kenneth Eels, and others, Intelligence and Cultural Difference (Chicago: University of Chicago Press, 1971), p. 62.

Another great disadvantage of the intelligence tests is that all such tests assume that abilities are static and that abilities discovered at one time will remain so through one's life. John Hersey says,

> Many a child goes through life labeled with an I.Q., figured not to the nearest five or ten points but to an exact digit, based on a single unnamed group test given at a very early age, perhaps on a day when the child was functioning well but perhaps not, perhaps in a carefully controlled group situation but perhaps not, perhaps by a skillful teacher but perhaps not, perhaps scored accurately but perhaps not.[4]

There are also many weaknesses which exist in the various achievement tests. The most serious weakness is their inability to measure the various potential abilities of many of the gifted who for some reasons have not demonstrated the normal achievement. For instance, the test does not take into account the curricular differences which usually affect the students in such tests. Furthermore, all achievement tests are bound to be limited to certain traits of a student. This is why the correlation of achievement tests and the success in life has never been satisfactory.

As a whole, the current trend in regard to the teaching of the gifted is toward providing more stimulating programs. Some of

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[4] John Hersey, Intelligence, Choice and Consent (New York: Woodrow Wilson Foundation, 1967), p. 11.

these programs have not been in the field long enough to be tested as effective or, in some cases, no careful evaluation has yet been made. The various methods and techniques which have been suggested and employed are far from being satisfactory. Ability grouping involves the policies of the educational administration in regards to the concepts of democracy, human dignity, and the pursuit of excellence. Some people argue against this method and label it undemocratic. The advocates of ability grouping believe that equality of opportunity does not necessarily mean the same opportunity for all. Cornell analyzed the special grouping this way:

> The results of ability grouping seem to depend less upon the fact of grouping itself than upon the philosophy behind the grouping, the accuracy with which grouping is made for the purposes intended, the differentiations in content, method, and speed, and the technique of the teacher as well as upon more general environmental influences.[5]

At the same time, the negative factors of ability grouping must not be ignored. The more common ones are the following.

1. In a class from which gifted students are excluded, the students are discouraged and their participation is poor.

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[5]National Society for the Study of Education, Grouping of Students (Bloomington, Ill.: Public School Publishing Co., 1966), p. 304, cited by Milton Gold, Education of the Intellectually Gifted (Columbus, Ohio: Charles E. Merrill Books, Inc., 1965), p. 305.

2. Some critics feel that ability grouping is undemocratic in assigning better teachers and extra opportunities to the few well endowed students.

3. Ability grouping is by result a form of segregation. Those who are selected come mostly from higher socio-economic strata.

4. Scientific studies have revealed variability of the abilities with human organisms. So all homogeneous grouping still cannot solve the problem of ability variability.

5. It creates low morale and unhealthy human relations among the teaching staff and the students. Those who are excluded from the elite group are looked upon as inferior.

Acceleration makes possible the providing of suitable and challenging learning experiences for the gifted, but it has its dangers too. First, there is the danger that too rapid acceleration may result in a social and emotional maladjustment of the students involved because their social and emotional maturation may be lower than that of those in the new group. Second, in cases where the teacher over-estimates the abilities of the gifted, the students may find themselves in situations with which they are incompetent to cope. Third, the acceleration itself "may not be interesting to the child

since the curriculum itself is not interesting and is not enriched for him."[6]

As a whole, almost all forms of acceleration have been too much oriented toward the idea of a "heavier load." In most established acceleration programs, little or no additional credits are given. This will make some of the gifted students who are involved in this kind of program feel that the extra burden is not worth their effort. Some parents who do not understand the motive of such programs are also likely to act against it. Some authors who question the moral aspect of the problem of this provision feel that the schools should use comprehensive examinations, acceptance of honor projects, and employment of a "contract" system as possible devices for accelerating the gifted students. It is also quite questionable whether the quality of learning can justify early graduation.

The advanced placement program has much to recommend it over other types of acceleration. Those students who take part in such a program neither miss the school programs nor are they overburdened by too heavy an academic load.

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[6] Robert J. Havighurst, Eugene Stivers, and Robert R. DeHaan, A Survey of the Education of Gifted Children (Chicago: The University of Chicago Press, 1965), p. 30.

The teaching of thinking has the great advantage of helping the students to develop independent learning which is so badly needed to balance the traditional approach of learning by authority. As thinking involves a complex of abilities, it can actually be considered a function of the total school program and not any specific area.

There are some people who believe that most original production is a matter of chance. The deliberate methods in teaching thinking such as creative thinking, critical thinking, and problem solving have sufficiently demonstrated the possibility of increasing the production of new ideas and new discoveries. If there is absolutely no such thing as inborn traits, it is very probable that human productive ability is simply a developmental phenomenon.

The understanding of the characteristics and needs of the gifted students is no doubt very important, but the backgrounds of the school can also be one of the factors which decide the success or failure of the various provisions. The background situations may be the availability of auxiliary facilities and services. Any adjustment for the gifted students is likely to be nebulous and unfruitful unless there are sufficient facilities to provide various kinds of learning experiences and sufficient specialists to diagnose the gifted student's individual needs.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

It is a fact that educational provisions are dependent on the definitions that are selected. During the recent years, there has been increasing concern for identification in terms of a criterion larger than those which were used previously. In most instances, the concern for a broader criterion is well justified. First, we have to know that the concept of giftedness is today a much broader one than ever. This is by all means a more sound approach because of which "giftedness" is no longer monopolized by a few academic intellects who are experts only in scoring high on tests. Second, the purpose for the identification of the gifted is none other than to find out as many individuals as possible who possess any kind of useful talents. In a way, this is the main reason which leads to the ever increasing popularity of the school of thought which would like to see I.Q. tests discarded. Actually, the over-used statement "no one method is good for identifying all students" has never ceased to be a valuable one. In attempting to know the students, the

multiple factorial approach to analyze the talents of the students seems to be the best way with which a conclusive identification is more likely to be reached.

Education of the gifted is in all actuality an extension of adapting instruction to the needs of the more able individuals. In some cases, such a possibility can be made only at the cost of other students who are excluded from the elite group. From the perspective of every individual, there is no doubt about the need to provide the gifted with special challenges in order to help him develop his full potential. But from the perspective of the society and the school as a whole, concentrating attention on education of the gifted can be justified only if the investment will help the gifted to make valuable contributions to the society.

Although there is no agreement on the kind of special provision which can best challenge the gifted students, there is agreement on the need to accelerate the study programs offered to the gifted students. The common interest of all schools is to intensify the study programs for the gifted in terms of both depth and scope so as to avoid the boredom that might result from a restricted educational diet. The current situation reflects the fact that different schools are using different methods and techniques to challenge the gifted. Some use the traditional approaches such as enrichment,

ability grouping, and acceleration. Others use the more recent methods such as independent study, the teaching of thinking, or adding special opportunities for the gifted. Some believe that the traditional approaches have raised too many controversies and insist that in order to provide more relevant study programs to challenge the gifted of this changing world, a major transformation or educational renovation must be undertaken.

In determining the various methods and techniques for making provisions for the gifted, one has to be prepared to stand against criteria in judging the practicability of those methods and techniques. In surveying the related literature the following questions must be first considered by teachers in determining the various methods and techniques for making provisions for the gifted. Does acceleration by shortening the time required for school attendance hamper the gifted student's self-realization in the independence of adulthood, or does it hamper the gifted student's creative thought because of insufficient time for such development? Does ability grouping insure the development of one's creative mind at the cost of others who are excluded from the group? Does ability grouping promote conformity to teacher-imposed standards which hinder individual development? Does the heavier load preclude unstructured creativities? Does the independent study result in mental maladjustment? These are some

of the crucial points which the teacher cannot neglect when trying to select the appropriate methods and techniques for making the necessary provisions

Conclusions

Through the many years of research and experiment, one can confidently conclude that the field of teaching the gifted has been exploited by educators and that there is very little likelihood of replacing the suggested methods and techniques entirely by new ones. Though there is little chance to replace all the suggested methods and techniques, there is sufficient room for expansion and internal renovations. Actually a review of the related literature reveals that even in the United States, provisions for the gifted students are still far from being satisfactory. A report made by the National Education Association Research Division revealed that only "75 high schools out of 100 are making special provisions for the gifted."[1] Out of these seventy-five schools, sixty-three listed enrichment in heterogeneous classes as the only method or one of a combination of methods used.[2]

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[1]National Education Association Research Division, Research Bulletin, 38 (May, 1960), 48, cited by William K. Durr, The Gifted Student (New York: Oxford University Press, 1964), p. 11.

[2]Durr, The Gifted Student, p. 11.

As a whole, the concern for special educational programs for the gifted students comes solely from the educators and teachers. There is no doubt that the variability of human talents, the complexity of the function measured, and the establishment of standardized tests are still unsolved problems in the testing programs. Many schools pay too little attention to the validity and reliability of the testing devices. Also, in many cases, the test users are uninformed and ill-prepared. If no attempt is made to improve the shortcomings, they will still stand guilty as charged.

Among the various methods and techniques which have been mentioned in the study, the teaching of thinking has much to be recommended. There is little or no doubt that it is the area in which the gifted students should indeed excel. The recent research in psychology has indicated that continuous efforts are being made to discover the precise understanding of the thinking process. As this approach holds great strength in helping the intellectually superior students to explore, question, experience, manipulate, test, and modify ideas and solutions, it is therefore necessary to conclude that this approach should be emphasized to a greater extent. This teaching method is particularly helpful because it can be employed by all skillful teachers and be integrated in just about any kind of course. The independent study, though still in its primitive stage,

holds a very promising future. It is predictable that schools with good libraries can make this teaching method so much more successful than those schools without good libraries. Above all, the relationship of computers and education will undoubtedly be one of the most promising means to challenge the gifted in the foreseeable future. Up to now, the computer has been used only in data processing and in assisting instruction. It is without controversy that the computer will be able to render a diverse range of provisions for the gifted.

As a whole, the provisions for the gifted child should be preceded by a definite goal which will determine the policies, curriculum, instruction, guidance, and scope and depth of the entire program. Though different people may have different goals, it is important that these goals be logical, attainable, and realistic.

It is evident that the various methods and techniques which have been presented to deal with the identification of and the provision for the gifted are not absolute means of "identification" and "provisions" per se, but can be considered helpful guidelines. The writer is convinced of the value of the over-used statement that "not all methods and techniques are equally suitable for all students." Even the word "guidelines" may be too conclusive. If so, the phrase "suggested possibilities" may replace "guidelines" for the

simple reason that there is no absolute teaching method. If a certain method has been proved to be effective, the effectiveness can certainly be considered supportive evidence to the applying of that particular method. Sometimes certain methods which have been proved effective may not be true when the same methods are applied to other students. Therefore, it is only appropriate to say that the justification for special provisions for any gifted students should be supported by evidence whenever available; and in the absence of any evidence, the provisions can be considered only as suggested possibilities.

Recommendations

The following recommendations are made as a result of the findings of the study.

1. It is recommended that further research be made to find out some unified norms and criteria for the establishment of the provisions for the gifted. There is no doubt that the provisions should differ in methods and curriculum to meet the needs of particular students and in particular situations; but generally speaking, there are still the common needs and problems that all schools face in establishing provisions for the gifted.

2. It is recommended that efforts should be made to establish a comprehensive information center to serve as a clearing house

throughout the nation to provide detailed data concerning special provisions for the gifted.

3. It is recommended that efforts be made to find more effective psychological ways and means of teaching the gifted. This recommendation is made because a review of the related literature reflects the fact that psychologists are still far behind in research and studies with regard to the understanding of special characteristics of the gifted students and the special teaching methods that are needed.

4. It is recommended that all new and old provisions for the gifted must be subject to continuous evaluation. As no two students learn in exactly the same way and as no individual students learn everything in the same way, all methods and techniques for teaching the gifted must be adjusted to particular students and to particular situations.

5. It is recommended that efforts be made to lead the parents to understand that the practice of "equal education for unequal students" is not only unfair, but it is very detrimental to the progress of the entire educational program. The goal of such efforts should bring forth the realization of gifted students studying at their capacity level instead of being restricted to grade level.

6. It is recommended that the communities of all schools be better informed about the special characteristics and needs of the gifted students so that they can be awakened from ignorance and indifference in regard to the gifted students. It is expected that such special efforts would beget community concern and encourage the school authorities to improve the special provisions for the gifted students.

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