A SURVEY OF THE MATHEMATICS AND SCIENCE PROGRAMS FOR THE GIFTED STUDENTS IN THE SECONDARY CITY SCHOOLS OF INDIANA

A Thesis

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

The public schools are dedicated to the task of providing opportunities for the maximum educational development of each pupil. In harmony with the purposes of education in a democracy is the important task of identifying and making provision for the student with exceptional potential in each of the fields of learning.

The concern for the education of gifted children is not new. The earliest formal effort by American Schools to plan special programs for the academically gifted dates back to the mid-nineteenth century. During the 1920's and 1930's a number of experimental research studies involving gifted children were made. In 1921 Terman and his associates began the first large-scale study of children with I. Q.'s of 140 and above. Their first findings, which involved a group of fifteen hundred gifted children, were published in 1925. This report, together with the follow-up studies, has lent support to the need of special provisions for the gifted children.

However, for many years the educators and laymen have been concerned mainly with providing special educational services for the physically and mentally retarded children.

The technological advances of the world during the last decade and the present struggle for the very existence of our freedoms have caused a greater concern for providing special educational services for the gifted children. At the present the growth of interest in the intellectually gifted is indicated by the great volume of books, professional articles and newspaper items about the need for identifying and for providing special educational opportunities for the gifted students. Industrial corporations have provided grants to educational institutions for additional research involving the needs of gifted children in mathematics and science. Studies of what schools are doing at present to identify and to educate their gifted students are a prerequisite to adequate program development for the gifted students.

I. THE PROBLEM

Statement of the problem. The purpose of this study was (1) to ascertain the number of secondary city schools of Indiana that have a special program of study designed especially for gifted students in mathematics and science; (2) to investigate the nature or core of such programs; (3) to report the major problems encountered in the education of students with superior mental ability; and (4) to reveal the number of secondary schools that are currently considering special programs for the gifted.

Importance of the study. With the critical shortage of leaders in technical fields, special attention should be given to all youth enrolled in mathematics and science at the secondary school level and especially to the intellectually gifted youth. Mathematics and science are of special pertinence today because of the importance of scientific research to assure the technological advancement of our nation.

American secondary schools are faced with two major problems in working with the intellectually gifted students: First, to arouse and sustain interest for academic learning in those who have special ability; second, to provide a curriculum program that will adequately prepare the gifted students for the nation's leading technical universities.

Therefore, it is necessary to report what secondary schools are doing at the present in identifying and educating their superior pupils. Such inventories are inevitable if adequate programs are to be developed in the future.

II. DEFINITIONS OF TERMS USED

Gifted students. The line of demarcation between those who are gifted and those who are not is an arbitrary one. Criteria employed to identify the gifted vary. Terms, such as talented, superior, rapid learner, gifted, bright, and exceptional, have been used to describe the group that is intellectually endowed.

Throughout the report of this investigation, the term "gifted students" shall be interpreted, unless otherwise denoted, as meaning those students who scored one hundred twenty or above on the Otis Gamma intelligence test.

Types of special programs. Throughout the report of this survey, reference will be made to the methods employed in providing for the gifted students. These methods include: (1) enrichment, (2) homogeneous grouping, (3) acceleration, (4) advanced classes, and (5) coaching.

Enrichment. This involves the extension of opportunities offered in the regular class room, usually by outside speakers, field trips, audio-visual materials, and individual projects.

Homogeneous grouping. This is the process of separating class sections on the basis of ability and interest.

Acceleration. This provides for omitting courses or for taking them at a lower grade, which is progress through an educational program at rates faster than normally taken.

Advanced Classes. These courses are beyond those required by the state course of study, or by graduation requirements. These courses reach or approach the level of college courses.

Coaching. Teachers give special attention and extra time to certain students working for awards or contests. The various science talent search projects are placed under the coaching provisions.

III. SOURCES OF DATA AND PROCEDURE USED

This survey was limited to the city or town secondary schools of Indiana. Regardless of size, every city or town school, which is governed by a school board was sent a questionnaire. The list of schools was obtained from the 1953-54 Indiana School Directory. Copies of the letter, questionnaire, and follow-up card may be found in the Appendix.

A few of the schools with well organized programs for the gifted students were visited. A much broader view of outstanding provisions was obtained by the visitation.

The collected data is summarized and discussed in Chapter III.

IV. LIMITATIONS OF THE STUDY

In this study there are two important limitations. First, only city schools were surveyed, which eliminated the township school systems and town-township school corporations from the study. Secondly, the questionnaire type study usually is limiting in itself.

A study of this type is aided by a personal visitation to each school to which a questionnaire is sent.

V. ORGANIZATION OF THE REMAINDER OF THE THESIS

Chapter II contains a review of some pertinent literature. This review includes some basic considerations of special programs for the gifted students, as well as pilot programs that have been successful in practice.

Chapter III deals with the questionnaire sent to the participating schools and the results obtained. The number of questionnaires mailed and the percentage of returns also are given.

Chapter IV is a summary of the findings, conclusions, and recommendations of the author.

CHAPTER II

REVIEW OF THE LITERATURE

I. SOME BASIC CONSIDERATIONS

Formal effort by American schools to plan special programs for the gifted student was initiated in the mid-nineteenth century. The first large-scale program for the gifted student was rapid promotion. Double promotions were rather common at the close of the nineteenth century. By the 1920's and 1930's educators tended to veer away from the double promotion type of acceleration and to favor enrichment, individual instruction, and special teachers. The shift of emphasis was an outgrowth of psychological and social research. The predominant belief was that the student should remain with his own age group, regardless of the disparity in learning ability. Recent Ford Foundation experiments involving the gifted student have swung the pendulum of professional belief back to acceleration at the secondary level.[1]

We must bear in mind that the early attempts to provide for the gifted students were established by a few progressive high schools. In this group of schools were

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[1] A. Harry Passow and others, Planning For Talented Youth, (New York: Teachers College, Columbia, 1955). p.3.

St. Louis, Missouri; Cleveland, Ohio; Cambridge, Massachusetts; and Santa Barbara, California. The attempts were isolated and lacking in popularity. A statement of the views of the majority of educators toward the gifted student in the early era is given by Osburn.

> In the ordinary school the rule for the gifted child was: 'This much shall you learn and no more. If by chance you get through your lessons before your fellows are through, fold your hands and wait quietly until all have finished studying'.[2]

One of the outstanding studies of gifted children reveals that acceleration can be of great benefit. Terman and his associates conclude:

> It is our opinion that children of 135 I. Q. or higher, should be promoted sufficiently to permit college entrance by the age of seventeen at latest, and that a majority in the group would be better off to enter at sixteen. Acceleration to this extent is especially desirable for those who plan to complete two or more years of graduate study in preparation for a professional career.[3]

The reason for this conclusion seemed to be the fact that the achievement quotients of gifted children in the pre-high school grades and high school average nearly as high as their I. Q's, but that many lose interest and make poor or mediocre records upon attending college.

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[2]W. J. Osburn and Ben J. Rohan, Enriching the Curriculum for Gifted Children, (New York: The Macmillan Company, 1931). p.27.

[3]L. M. Terman and others, The Gifted Child Grows Up. Genetic Studies of Genius, Vol. IV, (Stanford, California: Stanford University Press, 1947), p. 281.

Acceleration has taken the form of offering extra courses. The extra courses permit accumulation of more credits in less time; allow rapid mastery of subjects, such as completing two years of language in one year; and give college courses or college credits for work done in high school.

The concept and practice of acceleration have been controversial among educators since the turn of the century. The major arguments advanced in favor of acceleration include the following:

1. Keeping children in groups in which they are not adequately challenged may result in social and emotional maladjustments. While some problems may develop as a result of acceleration, research findings seem to indicate that such problems do not lead to permanent maladjustments.

2. Research has indicated that there is little correlation between knowledge attained in a given subject and the months or years of formal study devoted to it. Therefore, not time, but mastery should be the criterion for promotion.

3. If a number of gifted students were accelerated together, maladjustment due to social immaturity could be minimized.

4. Evidence shows that health, physical strength and endurance, intellectual alertness, interests and enthusiasm, all seem to reach a peak near the beginning of adult life. This finding suggests the desirability of enabling gifted individuals to complete full-time schooling and to engage in productive careers as early as possible.

5. Acceleration fosters earlier assumption of adult responsibilities.[4]

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[4]A. Harry Passow and others, Planning For Talented Youth, New York: Teachers College, Columbia, 1955). pp. 47-8.

The major arguments why acceleration is not desirable include the following:

1. Younger students are at a disadvantage in competing with older ones in many areas, and, as a result, experience emotional and social pressures that are harmful.

2. Comparability of mental age does not necessarily imply comparable intellectual functioning if the difference in chronological age is too great. Hence acceleration to a group with a higher mental age level, does not necessarily stimulate the gifted youngster.

3. A student whose progress is accelerated does not cover more challenging material in a shorter period of time, but rather is forced to cover what "average" older children are getting.

4. Acceleration tends to accentuate differences in ability and to set the youngster apart from his age peers, forcing him into undesirable social patterns.[5]

Some schools view curriculum enrichment as a desirable program for the gifted students. The school can enrich the educational experiences of the gifted students by offering additional courses in areas in which present offerings are too limited for gifted students. An enrichment curriculum may include facilities such as laboratories where the gifted may work extra hours. Outside speakers, and field trips in science can serve as excellent enrichment activities if well

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[5]Ibid. pp. 48-9.

organized. Programs of enrichment in the ordinary class room at their best can be very helpful. Terman summarizes poor class room enrichment by:

> Unfortunately, the so-called enrichment often amounts to little more than a quantitative increase of work on the usual level. This may keep the gifted child out of mischief, but is hardly educational.[6]

II. LITERATURE ON ORGANIZATION OF PILOT PROGRAMS

The program used at Forest Hills High School, Forest Hills, New York, in the selection and training of gifted science students deals with those students whose work in science is such that they might increase its techniques and enlarge its boundaries.[7] The average entering freshman class at Forest Hills is approximately 350 students. The first pilot program in science for the gifted was initiated in 1942. All entering freshmen were required to enroll in a general science course. This course sought to convey an understanding of the common phenomena in the student's environment, to teach the use of natural resources, and to instruct concerning the use of energy in doing man's daily

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[6]Terman, op. cit., p. 264.

[7]Paul F. Brandwein, "The Selection and Training of Future Scientists," Scientific Monthly, LXIV (March, 1947), pp. 247-52.

work. The administrators of the program believed it to be the first step in selecting and in training the future scientist. Careful observation was exercised by the teacher in the general science class. The progress of students who showed any signs of distinguishing themselves in science was noted during the first few months. Attention was given not only to those with high grades, but also to those whose grades were low, but who showed an ability to work with their hands. Since the purpose was to give each student the environment to make the utmost use of his gifts, the first distinctions were vague.

At the end of the first term, those who had shown an interest as well as an ability to work in science were given an opportunity to work in special laboratory sections during their free periods before, during, and after school. Usually, those who were interested, asked for use of the biological laboratory. Some preferred to work in other science activities, such as the department's publication, The Science Journal. Some chose to participate in various clubs organized for those interested in biology, chemistry, physics, engineering, and laboratory techniques.

All students were required to take biology during the sophomore year. Toward the end of the first term of biology, students were selected for a biology honor pilot

class. Students were selected on the basis of I. Q. reading score, and grades received in the first three terms of science. On these bases forty-eight students were selected for the special class. The pilot class then was given a course of greater difficulty than the regular biology class. Each student had an opportunity to do some original research at the high school level. Considerable time was spent in personal guidance. The pilot program was continued from the special class; every student elected to take a third year of science. Then from the third year section, forty-six enrolled in a fourth year, and nineteen continued with a fifth year of science. The fifth year was devoted to individual projects directed toward competing in the Westinghouse Science Talent Searches and exhibits sponsored by the Science Teachers of New York. Students were faced with problems without available solutions in textbooks. Some problems were of such a nature that many years of work may be required before even a tentative conclusion is reached. To illustrate the nature of studies involved, Brandwein listed these topics: (1) "How long does digestion take in the food vaceroles of different protozoa?, (2) Why does Chaos Chaos appear to have only a regional distribution? and (3) What factors influence spoiling in species of Coleius?"[8]

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[8]Ibid., p. 251.

13. Second
1954), pp.

After providing a special program for the talented students, the administration of Forest Hills was convinced that about five per cent of their graduates had been given excellent experience in science.

The Santa Barbara City Schools of Santa Barbara, California, have designed a similar program in English and science. They organized their program around a set of definite needs in planning provisions for educating the gifted student. They are:

1. A case study of each student whose scholastic aptitude warrants his being in a special class.
2. Parent education for participation in long range planning.
3. A teacher to work directly with these students to whom adequate time is given for the additional planning and counseling the individual program requires.
4. A flexible program for each student, based on his ability and emotional and social maturity.
5. Consideration of individual differences in extra-curricular activities. An excessive amount of purposeless extra-curricular activities can be as frustrating as not enough.[9]

Paul Klinge of Thomas Carr Howe High School of Indianapolis, Indiana has initiated a very successful program for students gifted in science.[10] Howe, which has

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[9]Santa Barbara City Schools, "What About Our Gifted Students?" (Santa Barbara, California: City Schools, 1955), p. 3. (Mimeographed.)

[10]Paul Klinge, "Working with Gifted Science Students in Secondary Schools", Science Education, XXXVIII (April, 1954), pp. 217-24.

an enrollment of nearly 1500 pupils, initiated the program in 1945 in an effort to meet the problem of the superior student in science. The science curriculum consists of tenth grade biology, eleventh grade chemistry, and twelfth grade physics. No ninth grade science is offered. After the first twelve weeks of the full semester, each teacher of sophomore biology is asked to list the students who fall into one or more categories:

1. Students who have definitely decided to major in science.
2. Students who have indicated an intention to major in science.
3. Students who are making the top grades in the class.
4. Students who show some special aptitude in science as revealed through hobbies or special interests.

From this total list, with consideration of the individual's scores on the science ACE aptitude test and Otis Gamma I. Q. test, enough students are selected for one class for the spring semester of biology, labeled "Special Biology Class". Each student is asked for his consent to be included in the class. The curriculum of the special class includes the same sequence of topics as in all other biology classes. However, much of the drill work and paper work, which is unnecessary for the truly gifted student, is eliminated so that there is a surplus of time for each unit. With this

time the student is asked to pursue a semester project which is a real scientific investigation, not just an intensive library research exercise. Speakers from the outside are also used, and the caliber of their contributions is high. Grading requirements for the special class are the same as for all other biology classes so the complaint that the special class is too hard and too exacting in its requirements may be silenced. Many superior students would not like to risk the loss of a good grade in a special class when a grade might come rather easily in the regular class, especially when the colleges base so much on academic records. The grading system is such that the student may see precisely how he is being evaluated, so that he too may enter into the process. Howe has decided that the point system is excellent for grading; that the "A" student soon sees the differences among the "A" students, and each finds himself competing for the highest group of "A's".

All science majors are checked carefully concerning their progress throughout the remaining years. Each student is encouraged to find one science teacher who will act, not only as an adviser in academic and vocational information, but also as a sponsor for a project which the student plans on pursuing during the remainder of his high school career in science. Richard Hammond, instructor of physics, devotes

much of his time as an adviser to students whose projects are of a physical science nature. The value of the supervision is shown by the fact that two physics awards presented by the Westinghouse Talent Search in 1955 went to Howe seniors.

CHAPTER III

PRESENTATION OF DATA COLLECTED

To evaluate the programs for gifted students in mathematics and science, it was decided to send questionnaires to every secondary city school in Indiana.

Ninety-one of the 130 questionnaires were returned, which is a seventy per cent response.

The returned questionnaires were divided into four groups according to the enrollment of the school. Table I shows the four groups with respect to the number in each group and the percentage of each group to the total number of responses. Throughout the remainder of the thesis each of the four groups will be evaluated individually in terms of its provisions for the gifted students.

The purpose of the fourth question of the questionnaire was to learn the approximate number of pupils in grades 9-12 with I. Q's of 120 and above. The ninety-one schools reported an enrollment of 77,332 and the approximate number with I. Q's of 120 and above totaled 9,533. Therefore, the percentage of pupils with I. Q's of 120 and above is eleven. Table II on page 20 gives the total enrollment and number of pupils with I. Q's of 120 and above according to the four sizes of schools surveyed.

TABLE I

NUMBERS AND PERCENTAGES OF RESPONSES
ACCORDING TO ENROLLMENT

School Enrollment	Number of Schools	Percentage of Total Responses
300 or Less	19	20.9
301 - 600	26	28.6
601 - 1000	19	20.9
Over 1000	27	29.6
Total	91	100.0

TABLE II

NUMBERS AND PERCENTAGES OF PUPILS WITH I. Q. 120 OR ABOVE ACCORDING TO SIZE OF SCHOOLS

School enrollment	Total enrollment	Approximate number of pupils with I.Q. 120 or above	Percentage of total enrollment with I. Q. 120 or above
300 or Less	4,275	437	10.2
301 - 600	11,420	948	8.3
601 - 1000	14,302	1,680	11.8
Over 1000	47,335	6,468	13.6
Total	77,332	9,533	11.1

In response to the question regarding programs designed especially to aid the gifted students, forty-six of the ninety-one schools reported no special program for the gifted students. Of the other forty-five schools, forty-two reported special programs in mathematics, thirty-seven in English, thirty-five in science, ten in social studies, and three in music to aid the gifted students.

Table III on page 22 shows that schools with enrollment of over 1000 have the largest number of programs designed especially for gifted students. All eighteen schools in the group reported special programs for the gifted students in mathematics and science. Sixteen of the schools reported similar programs in English. However, only four listed special programs in social studies.

The schools with enrollment between 601-1000 reported the second largest percentage of special programs. Ten of the eleven schools reporting special provisions listed programs in mathematics. Nine of the schools reported special provisions in science and English. Two schools listed programs in social studies.

Over forty-two per cent of the schools with enrollment between 301-600 reported special provisions for aiding gifted students. Of the eleven schools which had special programs, ten reported programs in mathematics, eight in English, six in science, and four in social studies.

TABLE III

NUMBER AND PERCENTAGE OF SCHOOLS WITH PROGRAMS ESPECIALLY FOR GIFTED STUDENTS

Enrollment	Number of Schools Responding	Number of Schools reporting Programs for Gifted Students	Percentage reporting Programs for Gifted Students
300 or Less	19	5	26.3
301 - 600	26	11	42.3
601 - 1000	19	11	57.8
Over 1000	27	18	66.7

The schools reporting the lowest percentage of special programs for the gifted were those with enrollment of three hundred or less. Approximately seventy-five per cent of this size group reported no program designed especially to aid the gifted students. As is shown in Table III, only five of the nineteen reporting schools had programs for the gifted students. Four of these five schools had special programs in mathematics and English. Two schools had some type of provision in science, while no schools listed special provisions in social studies.

The next major consideration was the methods used by the various schools in working with their gifted students in mathematics and science. The seventh question of the questionnaire provided for checking enrichment, homogeneous grouping, acceleration, and advanced classes as methods practiced by the schools in aiding their gifted students. In addition, space was provided for discussion of other methods used. Ninety-five per cent of the schools reporting special programs for the gifted, checked enrichment as a method used in aiding their gifted students in mathematics and science. A rather high percentage checked enrichment as their only method in aiding the gifted students. Sixty-seven per cent of the schools with special programs for the gifted use homogeneous grouping in their mathematics department. Likewise, forty per cent use homogeneous grouping in

TABLE IV

NUMBERS AND TYPES OF SPECIAL PROGRAMS
USED IN AIDING THE GIFTED STUDENTS
IN MATHEMATICS

School enrollment	Methods Used in Special Programs			
	Enrichment	Homogeneous Grouping	Acceleration	Advanced Classes
300 or Less	8	2	0	10
301 - 600	10	6	4	14
601 - 1000	7	9	5	12
Over 1000	18	13	5	16
Total	43	30	14	52

TABLE V

NUMBERS AND TYPES OF SPECIAL PROGRAMS USED IN AIDING THE GIFTED STUDENTS IN SCIENCE

School enrollment	Methods Used in Special Programs			
	Enrichment	Homogeneous Grouping	Acceleration	Advanced Classes
300 or Less	6	0	0	4
301-- 600	10	3	2	10
601 - 1000	9	5	2	7
Over 1000	18	10	1	13
Total	43	18	5	34

science classes. Acceleration was the least used method of providing for gifted students. Only eleven per cent of the schools with special programs reported acceleration. Advanced classes were listed by forty per cent of the schools as their method for aiding the gifted students. These schools listed solid geometry, trigonometry, and college algebra as their advanced classes. Table VI on page 27 shows the number and percentage of schools surveyed that use enrichment, homogeneous grouping, acceleration, and advanced classes.

Two major problems were reported in the education of gifted students. Twenty-five schools reported lack of facilities and staff as their main problem. Twenty-one schools stated their major problem was obtaining interested and qualified teachers. Nine schools reported that their curricula were designed especially for the average student. Several other problems were listed. Some of the comments follow as they were stated on the questionnaire:

1. Avoiding branding the students so gifted as "egg heads".
2. Often times keeping in balance time available and desires.
3. Teachers are inadequately prepared mentally or they refuse to recognize the need.
4. Child's time--these are already in many extra-curricular activities.

TABLE VI

NUMBER AND PERCENTAGE OF THE 130 SCHOOLS SURVEYED WITH SPECIAL PROGRAMS OF ENRICHMENT, HOMOGENEOUS GROUPING, ACCELERATION AND ADVANCED CLASSES

	MATHEMATICS		SCIENCE	
Method	Number of Schools	Percentages	Number of Schools	Percentages
Enrichment	43	33.0	43	33.0
Homogeneous Grouping	30	23.0	18	13.8
Acceleration	14	10.7	5	3.7
Advanced Classes	18	13.8	34	26.1

5. Giving the pupil what he needs <u>when</u> he needs it.

6. The philosophy aimed at "egg heads."

7. Cost!

8. Stimulating students to realize their own potential and achieve it without causing other unfavorable results.

9. No laboratory for carrying on research.

10. Classification of the gifted.

11. Break away from mind patterns of teachers.

12. Expense.

13. Giving course material suited to gifted, rather than addition of busy and supplementary work.

14. Orienting parental and faculty thinking to the desirability of segregated classes for the truly gifted.

15. The main problem in dealing with the gifted is to find teachers who are sincerely interested in their progress.

16. Finding enough work to keep them busy.

17. They are occasionally social misfits.

18. Getting a "dead" school administrator to recognize the problems and hire extra teachers to handle other than the regular classes. I have endeavored for two years to get some action; but with lack of space and over-loaded teachers, I see no immediate prospect for improvement.

The last consideration was plans for the future. Forty-five schools reported they had no plans for the future educating of gifted students. Several of the schools

that reported special programs are still studying the problem. Comments as to future plans for introducing special programs are listed as obtained from the questionnaire.

1. Some consideration is being given to special provisions for the gifted student.
2. We are going to offer more advanced courses in mathematics and science next year.
3. Building a better mathematics and science department.
4. We are contemplating homogeneous groupings.
5. None at present--still thinking.
6. We are going to use more homogeneous grouping next school year.
7. At the present time it is our intention to find interested teachers and assign a few of these youngsters to them in order that they may frequently keep in touch with them and their teachers to see that they are worked to their capacity.
8. The school has a faculty committee currently studying the gifted student program.
9. Our most imminent plan will be homogeneous grouping in mathematics and English.
10. Some experimental work will probably be done next year.
11. We are considering seriously more homogeneous grouping in some subject fields.

Indianapolis, South Bend, and Gary school systems currently have city-wide committees studying the education of gifted children.

CHAPTER IV

SUMMARY

The preceding chapter has revealed information on the number of secondary city schools of Indiana that have special programs of study designed especially for gifted students in mathematics and science; the nature or core of such programs; the major problems encountered in the education of students with superior mental ability; and the number of secondary city schools that are currently considering special programs for the gifted.

The results may be summarized collectively as follows: (1) Of the ninety-one responding schools, forty-two or forty-six per cent stated they had some special type of program for the gifted in mathematics, while thirty-five reported similar programs in science, (2) Ninety-five per cent of the schools reporting stated that enrichment was their chief method for aiding the gifted students. Sixty-seven per cent of the reporting schools used homogeneous grouping in mathematics, and forty per cent used homogeneous grouping in science. Only eleven per cent reported acceleration in mathematics and science, (3) The major problem encountered in educating gifted students was reported to be lack of facilities and staff. Obtaining interested and qualified teachers was the second major problem reported, and (4)

forty-five of the schools without programs for the gifted reported that they had no immediate plans for introducing special programs. Most of the schools that have special programs reported that they are still studying and revising their methods. Six are planning to use homogeneous grouping next year.

Conclusions: Gifted students attending high schools with an enrollment of one thousand or over have a better chance in obtaining special consideration. The gifted student in the high school with an enrollment of less than three hundred is greatly handicapped by the lack of science laboratories, library, and advanced courses. This survey showed that schools of less than three hundred are doing the poorest job of preparing the gifted students in mathematics and science. The larger city schools are studying and planning to improve their curriculum.

The evidence indicates that a larger number of schools that have been studying gifted students realize the advantages of homogeneous grouping. The schools that are planning for homogeneous grouping and special coaching are those that have experimented with these methods in a very limited way.

Recommendation: Since one of the major problems encountered in the education of gifted students is the lack of interested and qualified teachers, the education

departments of teacher training institutions might give more attention to this vital problem. In the writer's experience as a student in the education classes at Indiana State Teachers College, the emphasis has been on the needs of the average and mentally retarded child, while the needs of the gifted child were largely overlooked.

If some of the smaller school units could be consolidated, the lack of facilities could be easily overcome. The poor conditions in the majority of small city schools, as shown by this survey, lead one to surmise that even worse conditions might exist in the small township schools.

A survey of every high school in Indiana concerning the provisions for the gifted students would be an excellent start toward meeting the needs of the gifted group. Such a survey should include a visitation to every school.

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APPENDIX

2232 North 12th Street
Terre Haute, Indiana
April 3, 1956

Dear Sir:

I am conducting a thesis survey of the practices that are used in the Indiana public schools in working with gifted students. Your assistance is needed in making this survey complete. Would you take a few moments to complete and return the enclosed questionnaire? A stamped, self-addressed envelope is enclosed for your convenience. Your early cooperation will be greatly appreciated.

Yours truly,

George E. Roach

SURVEY OF GIFTED STUDENT PROGRAMS IN MATHEMATICS

(1) Name of school _____

(2) Member of North Central Association of Secondary Schools? ____ yes, ____ no.

(3) Total enrollment in grades 9-12 _____.

(4) Total enrollment of pupils in grades 9-12 with I. Q.'s of 120 and above _____ (check: ____ exact count, ____ approximate count).

(5) Does the school have a program designed especially to aid the gifted pupil in (check:) ____ English; ____ social studies; ____ mathematics; ____ science; ____ others (list:) _____ _____; or ____ none.

(6) Number of students participating in special classes for the gifted in mathematics _____, science _____.

(7) Check the methods used by your school in working with the gifted.

	Enrichment	Homogeneous Grouping	Acceleration	Advanced Classes
MATHEMATICS	_____	_____	_____	_____
SCIENCE	_____	_____	_____	_____

Other methods used _____

_____

(8) What special studies have been made of the possibility of introducing a program for the gifted? _____

_____

_____

_____

(9) What do you consider to be the main problem in the educating of students with superior mental ability?

_____

_____

_____

(10) Does the school enroll in the yearly achievement tests in mathematics which are sponsored by Indiana University? _____

(11) Approximate percentage of graduates who enroll in higher institutions of learning _____.

(12) List the subjects offered currently in mathematics and their respective enrollments. _____

_____

_____

(13) What criteria and testing program is employed in classifying the gifted pupil? _____

_____

_____

_____

_____.

(14) Give any additional information regarding the school's special provisions for the gifted or possibilities of introducing such provisions in the future. _____

_____

_____

_____

_____

_____.

Information supplied by _____