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Georgetown University conducted a college orientation summer school in 1964 for 49 eleventh grade students in the District of Columbia schools. Most of the Negro students from the District's slum area were interested in going to college bu t needed special academic aid and encouragement to qualify for good colleges. The program offered courses in chemistry, mathematics, English and reading improvement, and also provided guidance and counseling services and field trips and cultural enrichment. The summer school succeeded in improving student performance, motivation, and self-confidence. Future programs will start this talent development with tenth grade students. (NH)

THE COLLEGE ORIENTATION PROGRAM

June 22-August 14, 1964

The Summer School
Georgetown University
Washington, D.C.

A Report Submitted to

The National Science Foundation

Washington, D.C.

September 25, 1964

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Director of the Program

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I. SYNOPSIS

With the support of the National Science Foundation, the Summer School of Georgetown University conducted a College Orientation Program from June 22 to August 14, 1964, for the benefit of 49 eleventh grade students from five District High Schools. For the most part the students selected were Negroes from the inner-city area of the District of Columbia. All had expressed some interest in going to college but in the opinion of their schools needed special academic assistance and encouragement in order to qualify for good colleges and universities.

To strengthen the academic skills of the participants and to increase their motivation, the program offered courses in chemistry, mathematics, and English, guidance and counseling services, a reading improvement course, and a number of field trips and cultural activities. The courses were designed to avoid duplicating work done in high school and concentrated on introducing the participants to the nature of verbal and mathematical analysis and the methods of scientific investigation. In chemistry the laboratory problems demanded that the students discover for themselves the procedures required for the necessary experiments, and the lectures considered the role chemistry plays in the other sciences. The mathematics course focused attention on the reasons behind the processes used for solving problems and on the place of mathematics in man's experience of his world. In English, the emphasis was on composition and the problem of point of view in literary texts. The aim was to sharpen the students' analytical ability and to increase their imaginative response to works of literary art.

The field trips were to places of scientific and artistic

interest, and other activities included attendance at plays and concerts.

The program generally succeeded in improving student performance in the subjects taken. Twenty-one students in chemistry, 19 in mathematics and 14 in English bettered their high school mark in these areas by a full grade or more. Of the 49 participants, 22 received recommendations as qualifying for college work in one, two, or all three of the courses. The program also stimulated a strong interest in science. Chemistry, in particular, proved absorbing, but mathematics too, especially towards the end, engaged the participants, and in certain respects the advances there were even more impressive than those in chemistry.

The other parts of the program also had their effect. The students matured in outlook and came to regard their education more seriously and to adopt a more realistic attitude towards their abilities and habits of study. They grew in self-confidence as they demonstrated to themselves their capacity for hard work and for meeting exacting standards. They acquired a new interest in the arts and the theater which widened their horizons and made more familiar to them a world previously somewhat forbidding. Finally, they found college life richly rewarding. These experiences will undoubtedly exert a long-range influence and play a considerable role in their intellectual and personal development.

A number of changes are contemplated for the future. These relate to the structuring of the courses and guidance services and to selection policy. The major change will consist in bringing students into the program after the tenth rather than the eleventh grade.

II. THE PROGRAM

From June 22 to August 14, 1964, the Summer School of Georgetown University, with the support of the National Science Foundation, conducted an eight-week College Orientation Program for District high school students. Fifty-one students who had just completed their junior year at Cardozo, Dunbar, Eastern, McKinley, and Walden High Schools participated. Of the original 51, 49 completed the summer course of study.

1. THE PROBLEM AND OBJECTIVES

This summer's program was the first phase of an attempt to confront a most serious problem in American education: the fact that great numbers of quite capable students fail to pursue their education beyond high school. This is particularly true of the disadvantaged, those who are held back because of economic and cultural circumstances which deprive them of adequate training and lower their aspirations. Such students either do not go on to college at all or attend institutions of a second or lower rank.

The consequences of this situation are grave. The students themselves suffer from the failure to realize their educational potential, and society as a whole loses the very real contributions these young people might have made. Science too is deprived of the abilities many of these students represent.

In the face of this problem, the established university has a special responsibility to assist the high schools in their efforts to see that disadvantaged youngsters have every opportunity to achieve a full measure of intellectual growth. Georgetown's College Orientation Program was an attempt to fulfill that responsibility. It was based on the conviction that a university's resources enable it to offer special programs which can strengthen the participants' academic skills, heighten their incentive, and introduce them to various aspects of college life and study which, because of unfamiliarity, deter many of them from seeking admission into the better colleges and universities. The program also operated on the belief that because secondary school mathematics and sciences present particular problems to the type of student involved, a program focussing on these subjects can materially benefit science as a whole.

Accordingly, Georgetown's College Orientation Program had three major objectives:

(1) To provide the participants the guidance, the academic training and cultural experiences which would motivate and equip them for admission to good colleges and universities.

(2) To increase the pool of trained personnel available to science and to stimulate the interests of the participants in a scientific career.

(3) To serve as a pilot program to develop incentive among the underprivileged.

2. THE PLAN OF THE PROGRAM

To meet these objectives, the program consisted of three academic courses supplemented by guidance sessions, tours of scientific places of interest, and cultural activities. The courses were in mathematics, chemistry, and English. The University requested support from the National Science Foundation for the mathematics and science courses only. It was believed, however, that English was an essential aspect of the program since competence in language is a fundamental prerequisite for admission to any reputable college or university.

The eight-week summer program was only part of the overall project. During the coming academic year the participants will meet periodically with advisors from the program in order to further the program's goals, and during the summer of 1965 the participants will return to the University campus for a second summer session. The directors of the program are persuaded that a single summer session is not sufficient to provide the kind of help the participants need.

3. PERSONNEL

The program was endorsed by Dr. Carl F. Hansen, Superintendent of District Public Schools. Other officials of the District School System worked closely with members of the University in designing the program. Among these were Mr. John D. Koontz, Superintendent for Junior and Senior High Schools; Mr. Leo M. Allman, Assistant to Mr. Koontz; Mr. Charles S. Lofton, Principal

of Dunbar High School; Dr. Bennetta Washington, Principal of Cardozo High School; and Mr. Madison W. Tignor, Principal of Eastern High School. The directors of the program received further assistance in planning and selection procedures from Mr. Lofton and several counselors at Dunbar and from Mrs. Marion Davis, a teacher at Cardozo, and Mr. Donald Poloquin, a counselor at Eastern.

To administer the program, a committee of Georgetown University personnel was established. This consisted of Dr. Rocco E. Porreco, Dean of the Summer School; Dr. Roger Slakey, Assistant Professor of English; and Dr. Malcolm Oliphant, Chairman of the Department of Mathematics. Dr. Oliphant also served as mathematics advisor to the program. Dr. Slakey was program director. Mr. Gilbert Winner, instructor in English at Dunbar High School, served as Dr. Slakey's assistant.

Consultant to the program was Dr. Charles V. Willie, former Research Director for the Washington Action for Youth Committee and Associate Professor of Sociology and Anthropology at Syracuse University.

Instructors in the program were as follows:

English: Dr. Slakey and Mr. Gerhardt Joseph, Georgetown English Department

Mathematics: Miss Anne Marie Meyers and Mr. Ronald Umbeck, graduate fellows in mathematics at Georgetown

Chemistry: Dr. James Lambert, S.J., Woodstock College, and Miss Catherine Costello and Miss Monica McCarthy, graduate fellows in chemistry at Georgetown

For students with serious reading problems a course in reading and study habits was conducted by Mrs. Patricia Shea and Miss Sue Friedman of the University Reading Clinic.

4. FINANCIAL ASSISTANCE TO THE PARTICIPANTS

Each participant was given a tuition and fees scholarship of $ 215.00. In addition he was provided with a $5.00 weekly food booklet and $4.00 a week in "walk-around" money. His travel expenses were also provided, and this amounted to $8.00 for the summer program. The University assumed the costs of admission to the various cultural activities and provided transportation.

III. SELECTION OF THE PARTICIPANTS

The kind of student the University sought to help was one who possessed the intellectual capacity to do college work and who had expressed some interest in attending college but who would be unlikely to realize his talents or to gain admission to a college appropriate to his abilities without special academic assistance and encouragement. Such a student was likely to belong to one of two groups: (1) those who had only recently begun to think seriously of attending college and whose records, therefore, were too poor for admission to good colleges, and (2) those whose records were adequate but who lacked the self-confidence and incentive to develop their talents to the full. The students selected from both groups were to be those whose

economic and cultural circumstances contributed significantly to the difficulties they faced. Since the metropolitan area concentrated on was the "inner-city section" of Washington, most of the students would be Negro.

The principal criteria provided by the University to the schools for the purposes of initial selection were five: (1) Students should have completed the 11th grade; (2) they should be in a college preparatory but not honors track*; (3) they should have shown some desire to attend college; (4) they should be from a disadvantaged background; and (5) they should need financial assistance but should not be faced with the necessity of working during the summer to supplement the family income.

On the basis of these criteria the schools involved sent 96 recommendations and transcripts to Georgetown. A few students whose records suggested they did not need the program's assistance were screened out at this point.

The remaining applicants were interviewed by the Georgetown staff. The first interviews were conducted at Georgetown and then later, and with more success, at the individual schools.

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* There were, however, fourteen from an honors track in the final group. This, though, was the result of special considerations. The track itself had been in operation only since November of 1963, and the students had received, therefore, only one semester of honors work. In addition, a number of them had deficiencies in some of the subjects covered in the Orientation Program, and others had problems of motivation, attitude, or study habits which, in the judgment of the high school, made it imperative that they receive the kind of help the program offered.

The final selection was made by Dr. Slakey and Mr. Winner and was based on the following factors: (1) the applicant's high school record, (2) the principal's recommendation, (3) the interviews conducted by the staff, and (4) any background information available, such as indications of potential ability not demonstrated by performance, family conditions, etc.

Attempt was made to select an equal number of boys and girls and to give equal representation to the participating schools.

The group finally selected consisted of 51 students. Of these two withdrew for personal reasons after the program was underway. Forty-nine (25 boys, 24 girls), therefore, completed the summer course of study.

After the final selection, Dr. Willie gathered data on the students which suggests that, by and large, the program was successful in reaching the group it aimed at. (The following figures are based on Dr. Willie's interviews with 49 participants; two included in the final selection were not able to attend the interviews.)

The student grade point average of the participants ranged from a high of A to a low of D/. However, 84% of the students participating had a grade average below B/, and 80% were in the B to C range. Students with grades above B/ were considered as already having good prospects for college admission, while those with a grade of C or below were considered risks. (In this connection, it must be borne in mind that all the students were in

college preparatory tracks in which the grade of C indicates the unlikelihood of the student's being admitted to a good college or university.) Fourteen of the final selectees fell into this category. It is worth noting, therefore, that in the program itself eight of these fourteen received a final grade of A or B for their performance.

The staff was pleased that the largest number of the participants (39 or 80%) had grades in the B to C category. This suggested that the program was involving students in the two groups primarily aimed at -- those whose records were inadequate but whose lack of incentive and self-confidence hindered their development and those whose potential was not yet demonstrated by performance in school.

The personal data collected by Dr. Willie also indicated that the program was drawing into it the kind of student whose economic circumstances constituted an obstacle to his further education. Most of the students came from households consisting of from four to seven persons, 83% of the participants falling into this category. When this figure is related to the fact that 81% of the parents of the participants are either clerks or blue-collar workers, a picture of the generally prevailing economic situation in the families of the participants emerges. A further fact might sharpen the picture yet more: of the 70 women in the families of the participants-- mothers, grandmothers, and aunts-- 37 or nearly 53% work. In other words, the family typical of those from whom the participants come is

in straitened financial circumstances, although above the poverty level. The educational background of the parents and guardians of the participants might also discourage ambitions for college. Of the 90 parents or guardians on whom information was collected, only 3 had a college education, while 47 or 53% had not graduated from high school. The fact, therefore, that the program was reaching students from families where education was by no means a tradition was most encouraging to the staff.

Although the program was unable to reach students in the lowest economic level-- and this simply because the prospective candidates had to work during the summer-- the staff believed that, by and large, it was successful in bringing into it the kind of student it was designed to help.

IV. THE SUMMER COURSE OF STUDY

1. PLANNING AND GENERAL DESCRIPTION

The planning of the course content of the program began with discussions between the staff and the heads of various departments in the public schools. As a result, it was decided that the three course offerings would be in mathematics, chemistry and English.

Mathematics was an obvious necessity for the type of program contemplated. Not only is it the language of the sciences, but it also constitutes perhaps the greatest academic problem for incoming college freshmen.

Chemistry was chosen on the advice of the teachers in the public schools, who felt that chemistry would be the most valuable science for the participants because of its basic importance and the access it offers into other scientific fields. The teachers also believed that because most of the students take chemistry in their junior year, a course in chemistry would enable the program to deepen and enrich the participants' scientific experience.

The staff was convinced that English was also a necessary part of the program. Skill in language is, of course, a preliminary to the mastery of all other academic disciplines, and the ability to respond to the major works of literature is one of the signs of intellectual development.

The final course plans were made by the staff in consultation with members of the relevant University departments and on the basis of the abilities of the students actually chosen.

The courses were deliberately designed to avoid duplicating work done in high school. Rather, they aimed at introducing the students to the meaning of verbal and mathematical skills and the methods of scientific investigation. They also sought to help the participants discover the enjoyment and significance of inquiry.

The courses met four days a week, and there were two chemistry labs per week. In addition, students with serious

reading and study problems were given a special course by the Georgetown University Reading Clinic.

There were also five general sessions during the program, and these were devoted to the discussion of the students' problems, attitudes, and plans. The first and last of these sessions were conducted by Dr. Willie. The other sessions were conducted by Dr. Slakey, Dr. Lambert, and Mr. Winner. At these times the students were invited to air their objections to the program and to evaluate their own progress. Special emphasis was placed on the ways in which the program could be meaningful to the participants when they returned to their high schools.

Private counseling was introduced in the sixth week of the program. In addition, the students had numerous conferences with their individual instructors. In the counseling sessions the staff was assisted by members of the Georgetown University Psychological Services Bureau.

Completing the program were the cultural activities and the tours to places of scientific interest.

Descriptions of the courses and special activities follow:

2. THE MATHEMATICS COURSE

This course was taught in two sections by Mr. Ronald Umbeck and Miss Ann Marie Meyers. Special study sessions were also conducted. The text used was Algebra II by Brumfiel, Eicholz and Shanks. The students were also directed to a number of supplementary books such as Muir, Of Men and Numbers; Titchmarsh,

Mathematics for the General Reader; and Kramer, The Main Stream of Mathematics.

The main topics covered were as follows:

I. Properties and Operations on Sets

II. Number Systems and Their Properties

III. Algebraic Equations

IV. Cartesian Products of Sets and Their Graphs

V. Functions

Emphasis was also placed on the postulational method of mathematics, and some consideration was given to the evolution of the concept of number and types of number systems. A brief study of order, inequalities, fractions, and equations was presented between the consideration of rationals and the treatment of irrationals.

In the last six weeks special attention in a number of the study sessions was given to the students' need to be aware of and to appreciate mathematics as significant factor in the study of nature. Discussions were held weekly on the following topics:

What is Mathematics?

Why Study Mathematics?

The Human Significance of Mathematics

The Concepts of Mathematics

The Methods of Mathematics.

In addition to encouraging the students to extend their reading beyond the assigned text, the instructors conducted special sections in higher algebra (e.g., quadratic equations)

and gave instruction in the use of the circular slide rule. The instructors were available for private consultation and held weekly study sessions for groups of from five to seven students.

In general both instructors were concerned to bring their students to an awareness of the reasons behind the processes used for solving mathematical problems.

3. THE CHEMISTRY COURSE

This course was organized into two lecture sections and one laboratory section. Dr. Lambert taught one of the lecture sections, and Miss Costello and Miss McCarthy the other. Both sections met together for laboratory work under the direction of all three instructors. The texts were Chemistry by Sienko and Plane and Practice in Thinking by Jay Young.

The following was the course outline for the lecture sections:

I. General Introduction

The Scientific Method

The Methods of Chemistry

II. The Nature of Matter

III. Atoms

IV. Chemical Bonds

V. Stoichiometry

VI. Gases

VII. Solids

VIII. Changes of State

IX. Solutions

In the laboratory the following outline was used:

Part One: Introduction to the Lab

The Gas Burner

Work with Glass

The Use of the Thermometer

Techniques in Gas Handling

Various Useful Techniques

Part Two: Exercises in the Scientific Method

Introduction-- The Written Laboratory Report

Experiments

Group A-- Physical Changes

Group B-- Ions in Solution

Group C-- Properties of Gases

Group D-- The Elements of Group I and Their Components

In the laboratory the students were divided into groups of three and thus could work at more or less their own pace. The problems assigned demanded that the students discover the methods required for conducting the necessary experiments.

All told, there were four chemistry lectures a week and four and one half hours of laboratory work. Once every week Dr. Lambert lectured to the entire group on the relations between chemistry and other scientific fields. In addition, two guest lecturers spoke to the participants, one a chemist from the National Institutes of Health and the other a biochemist from Virginia State College. (Both guest speakers, by the way, were Negroes, and the participants, most of whom are also Negroes, were

impressed to see members of their race in such responsible positions in the field of science.)

In the laboratory the students had constant opportunity to consult with the instructors. In addition, the instructors were regularly available for private tutoring and guidance.

The primary aim of the chemistry course was to lead the students to discover the nature of science and to illuminate its relation to man's effort at understanding the world. Essential to this was the attempt to provide the students with the invigorating experience of actually engaging in scientific inquiry.

4. THE ENGLISH COURSE

This course was divided into six sections of eight to nine students each. The three instructors-- Dr. Slakey, Mr. Joseph, and Mr. Winner-- met with each of their sections four times a week for one hour a session, although frequently the interest of the students continued the classes for up to two hours. All of the sections were provided with the same set of books, and this was extensive enough to permit each instructor to adapt the list to the pace and interest of each of his sections. On the basis of high school records, the staff had selected the best eight students for a special section and distributed the rest through the remaining five sections.

As observed above, the book list for the course was large. It included selected dialogues of Plato, essays by Emerson, Thoreau's Walden, Melville's Billy Budd, James's The Turn of the Screw, and a number of plays by Sophocles, Euripides, Shake-

speare, Shaw, and Arthur Miller.

The general focus of the course was on drama. One of the principal reasons for this was to alert the students to the problem of point of view in the analysis of written texts. All six sections began with a study of Plato's Crito and then moved into some of the other dialogues in varying ways. Generally, one or two books of The Republic were treated. The study of Plato introduced the students to the dialogic method and to the problem of point of view and the importance of examining one's own views. It also brought the students to an awareness of the necessity for properly defining their own terms and to some [illegible] notion of the value as well as the difficulty involved in making precise what they know or assume they know.

From Plato, the sections moved to Emerson and Thoreau. Here the students experienced some difficulties because of the epigrammatic style these authors employ and the unusual turns of their language. Following this part of the course, works of fiction and drama were studied. Each of the instructors pursued some special theme in considering these later works: Mr. Joseph concerned himself with the notion of evil, Mr. Winner with the idea of responsibility, and Dr. Slakey with point of view and the drama as a performance. Attempts were also made to relate the plays to the cultural history of the periods in which they were written.

Students were given library assignments on the playwrights and their contemporaries, and each student delivered one oral

The schedule called for each student to write a theme a week based on the works studied and discussed. The instructors provided them with outlines and suggested ways of treating the topics. As the course progressed, the outlines were gradually reduced in fullness and the students became increasingly responsible for filling in details.

In all the sections, instructors held weekly conferences with their students, allowing each student approximately a half hour. At these sessions, the student's themes were discussed and occasionally academic problems the student was encountering in the program.

In the class meetings the students were encouraged to express themselves and participate in a mutual exploration of the subjects involved.

The reading list followed was drawn up with the idea of combining difficult and relatively easy materials and permitting a variety of topics to be raised. It gave opportunity for dealing with several kinds of drama and for considering the history of dramatic form. It also served to present comedy and tragedy as ways of seeing human behavior and introduced the students to the difference between the dialogic situation and the dramatic situation, and between the point of view and method of presentation employed in drama and those characteristic of fiction.

The discussions also considered ideas, themes, forms, and language and paid some attention to the problem of the histories of words.

Additional work was made available through various "case-books" such as those on Billy Budd, Henry IV, and Oedipus Rex, and students who were still wrestling with certain basic problems of grammar and style were directed to several grammar and rhetoric workbooks.

The general aim of the English course was to increase the verbal skills of the participants and to assist them in developing their ability for the critical examination of literary texts.

5. COUNSELING

For the first five weeks counseling was handled by the English teachers. During the sixth week each student was assigned an individual counselor, with whom he met at least twice. The students also met frequently with their instructors for special study or guidance sessions. In the counseling the staff received the assistance of the Georgetown University Psychological Services Bureau.

The counseling sessions took up such matters as the student's general progress in the program, his plans for the future, and the work he would be undertaking in his senior year in high school. Students were also advised on standards of admission to college. Another important part of the counseling work was the attempt to get the student to confront and analyze his own attitudes, habits, and values.

Throughout the program the students received no grades. Instead they were informed of their progress during private in-

terviews with instructors and counselors.

At the conclusion of the program the student met with each of his teachers, who then gave him a final evaluation of his work, his attitudes, and his abilities. The English teacher discussed with him his general performance in the program and the degree of recommendation the staff would give him as a result.

As was indicated earlier, there was also a general evaluation session at the end of the program. This was conducted by Dr. Willie. Dr. Slakey, the director of the program, also participated in this final session.

6. THE READING AND STUDY COURSE

During the first week all the participants were given tests in reading ability and study habits. As a result, the Georgetown Reading Clinic provided 20 of the students a course designed to increase their reading comprehension and improve their habits of study. The course met for four hours every week.

7. TOURS AND CULTURAL ACTIVITIES

In connection with the mathematics and science courses tours were made to the National Geographic Society, the Bureau of Standards, the Beltsville Agricultural Research Center, the Bethesda Naval Medical Center, and the Georgetown Computation Center. The last four were guided tours during which the participants were informed as to the nature of the work done at the various installa-

tions and its importance for scientific research. As far as was possible the tours were coordinated with classroom material.

As part of the cultural program, the participants were given a weekly bulletin listing free entertainment in the city and on the campus. This included concerts by the Georgetown String Quartet and the Northern Virginia Woodwind Quartet and by Robert Conant, harpsichordist, and John Thomas, tenor. Also open to the participants were two one-act operas presented by the American Opera School.

Trips were taken to the Folger Shakespeare Library for the Shakespeare Fourth Centennial Exhibit and to the Library of Congress and Dumbarton Oaks.

The participants also attended the following plays: Camelot (The National Theater), Midsummer Night's Dream (Sylvan Theater), Endgame (Theatre Lobby), Lady from the Sea (Theatre Lobby), The Importance of Being Earnest (Actors Company), and Desire Under the Elms (Actors Company). After the performance of Endgame the director of the play discussed the work with the participants.

V. EVALUATION

It is, of course, impossible to measure the effect of a program such as this on its participants, although some attempt will be made later to draw conclusions from the statistical material available. To a large extent the program's success will not be evident until a considerable amount of time has passed, and even then it will not be subject to quantitative analysis. In

addition, it is clear that the role the program has played in determining the future of the young people involved can never be precisely stated. Finally, the most profound and important effect the program can have on the participants will be personal, intangible, and incapable of being demonstrated through figures or documentation.

Nevertheless, the staff has good reason to believe that the program has been successful beyond expectation in achieving its aims and in producing the effects which an eight-week session is capable of bringing about.

1. STUDENT ATTITUDE

One of the most immediate pieces of evidence to support this conviction lies in the attitude the students themselves displayed towards the program. From the beginning they responded enthusiastically to the opportunity to take part. The following are typical of the remarks recorded by Dr. Willie in his interviews with the students shortly after the final selection was made: "I think it is a wonderful thing. It is the best thing that has happened to me in a long time." "I have been inspired by this program to feel stronger about education. This is one of the greatest experiences of my life, and I will do my best work." "I am overwhelmed at taking a course of this sort."

The sincerity of these attitudes was tested from the very start of the program when the students were told that they would be treated as college students and that they alone would be responsible for their progress. Attendance at classes was

not mandatory, nor was it a requirement that they turn in assigned work. Further, as there were no tests given, even their reading assignments were their own responsibility. In every way possible their own interest, therefore, was made the determining factor in the work performed.

The results of this freedom from supervision were most encouraging. Attendance was generally excellent in all classes throughout the entire eight weeks. The average student missed only one or two classes during the whole eight-week period. In the very last week there was an almost imperceptible decline in attendance, but this revealed no pattern, students missing one class of a given section and then turning up for the next. As this report mentioned earlier, only two of the original 51 students failed to complete the summer course of studies, and this for family reasons quite unconnected with the program.

The amount of work done by the participants also serves to indicate the seriousness with which they took the program. In general the staff estimated that 80 to 90% of the assigned work (reading assignments, laboratory work, and papers) was performed. In chemistry 46 of the 49 completing the program did 80% of the assigned work; in mathematics 33 of the 49 did 85% of the work; and in English 46 of the participants did 90% of it. The fact should be stressed that there were no penalties for failure to do the work assigned.

Mathematics, of course, presented a special problem to a large number of the students. Many had simply no idea how to study the subject, and 10% of them admitted that they had an

inadequate mathematics background. Laboratory sessions under the guidance of teaching assistants would unquestionably improve the students' performance in this subject, but it was noted that even under this summer's conditions, the students acquired a keener interest as they gradually began to see mathematics as a part of human experience. On the strength of this new interest, many returned to earlier sections of the material.

A final point to be noted in this general connection is that assignments were handed in up to and including the very last day of the program.

Other evidence confirming the staff's belief that the participants took the program seriously is derived from answers to a questionnaire completed by them at the end of the program. To one question asking for the amount of time spent in studying for each subject, 20 of the 27 responding stated that they studied one hour a day for each subject, five claimed that they studied at least a half hour a day for each subject, while two indicated they studied less than half an hour per subject per day. (With regard to these figures and others taken from this questionnaire, it should be noted that some of the answers could not not be taken into account because the students either misread the questions or wrote uncertain answers. This explains some of the omissions in the figures presented.)

The same questionnaire asked whether the eight-week session was too long. Of the 37 responding to this question 26 said that their interest continued to grow as the program proceeded.

Eleven stated that their interest started to decline after the sixth week.

On the use of the library 35 out of 42 students indicated that they used it to some degree, mostly the audio-visual room and the reference rooms in the main and the science libraries. Approximately 30% of the students answering the questions involving the library claimed that they withdrew books from it for their private reading.

Forty-two students replied to questions concerning supplementary reading. Of these, 15 stated that they read only the assigned materials, while 64% of them read at least one book from the supplementary lists,and 40% read five or more books.

Participation in the cultural events and tours also indicates the attitude of the students towards the program. Only two of the entire group took no part whatsoever in these events, and there was a general attendance for plays, concerts, and tours of 90%.

A final point bearing on the question of student attitude towards the program is the fact that 80% expressed the desire to continue with the program during their senior year in high school and to return to the campus for the second course of study in the summer of 1965.

In summary, it seems evident that the enthusiasm for the program initially expressed by the students survived the actual experience of the summer's work. This, in turn, provides some measure of the success the program had in achieving one of its primary aims-- that of bringing the participants to take their

education more seriously than they had before and to strive harder towards developing intellectually.

Another aspect of the program's effect related to this matter lies in the fact that as a whole the group identified strongly with the University and the program and took pride in showing what they could do with the opportunity given them. Many stated that they were happy that they were so well received on campus and were able to mix with the other students on a personal basis. A number also said that they appreciated the chance to talk to foreign students attending the Summer School and in this way learn more about the world outside the United States. In these respects the program was once again successful in affecting the attitude of the participants since it brought them into an environment they had previously considered somewhat alien and forbidding. Now they are more inclined to feel themselves capable of participating naturally in college life.

2. THE COURSES AND OTHER ACTIVITIES

By and large the staff believes that the courses, tours, and other phases of the summer program were effective. Nevertheless, a number of changes are being planned for future sessions. Consideration of the separate activities follows:

a. Chemistry: Chemistry was perhaps the most successful of the three courses offered. Many of the students said that for the first time they felt that they understood what chemistry is all about and what the scientific method actually means. The

interest in chemistry that this course generated was also marked. Figures regarding student performance in this subject bear out the staff's conclusion that the chemistry offering was well conceived and highly effective. (See subsequent section on student performance.)

The changes contemplated for chemistry involve laboratory work and general lectures. In the laboratory the object will be to increase the ratio of laboratory assistants to students from this year's 1:20 to 1:12.

This year Dr. Lambert gave six lectures on the relation of chemistry to other scientific fields, and these proved to be of considerable interest to the participants. Placing chemistry in its larger contexts increased the students' awareness of its significance and its relevance to man's effort at understanding his world and fashioning it to his needs. The staff believes that ten rather than six lectures of this sort should be offered and that more outside lecturers should be brought in, five rather than this year's two.

b. Mathematics: A number of difficulties were encountered in this course. For one thing, as remarked earlier, the background of the participants in mathematics was more notably deficient than that in any other course. In addition, mathematics presents a special problem to a great many students in that they are unable to discover the method necessary for studying it.

For these reasons, it is evident that the students taking mathematics need more assistance and individual attention than

the program this year was able to give them. Therefore the next phase of the program will institute laboratory sessions in mathematics rather than consultation meetings and for this purpose will divide the students into smaller groups, involving a ratio between teachers (or laboratory assistants) and students of 1:7. In this way there should be ample opportunity to give the students the kind of assistance they clearly need. To staff these smaller sections, senior mathematics majors and graduate students may be used.

Another change in the mathematics course will lie in the greater stress to be placed on the role of mathematics in general human experience. Considerable attention will be given to the cultural and epistemological roots of mathematics. This summer's experience revealed that student interest in the subject sharpened in relation to the degree to which mathematics was seen as a part of the whole world of man. As this became more and more evident to the participants, they found mathematics increasingly engaging and in significant numbers returned to earlier parts of the course to review material there. The general level of performance also rose as a result of this new insight into the subject.

The plan now, therefore, is to begin future courses by solidly basing mathematics in the whole intellectual experience of man and to pursue this theme throughout the course, without, needless to say, neglecting the topics covered in this year's program. In addition to increasing student interest, this would

also give greater significance to the effort at understanding the reasons behind the procedures used to solve mathematical problems. Too often students see these procedures as merely standard but apparently arbitrary or accidental formulae.

c. English: Although the students were on the whole enthusiastic about their English course, the staff believes that certain changes can materially improve its effectiveness. The first summer's course should concentrate, the staff feels, on reading, study habits, and attitudes towards study, and it should be specially designed to meet the needs of the students participating. At the moment such a course is being constructed for next summer.

Composition could also be improved. In this regard next summer's course will offer two writing laboratory sessions a week in which the students will write under supervision. In this way, writing problems can be met as they come up-- and before difficulties have hardened into habits.

d. Counseling: This year's counseling was not as successful as it could be. For one thing, special counselors were not assigned until the sixth week of the program, and, for another, counselors were not able to get close enough to many of the real problems afflicting the students-- problems of home and neighborhood, for example, which were creating conflicts of values for the participants. This is a very serious matter since the success of the program as a whole depends heavily on its ability to affect the values the students possess.

Next summer new counseling procedures will be followed. Counseling for the first summer program will be conducted by

members of the Psychological Services Bureau, and students will be assigned individual counselors at the very beginning of the term. Each student will meet with his counselor either individually or in small groups every week. These sessions will concentrate on problems of attitude and the interpretation of the student's experiences. Attention will also be given to study habits, problems of environment and the home, the student's interests and his ambitions. Professional counselors, the staff is convinced, can help isolate the student's real problems more satisfactorily than his teachers can.

During the second year, however, the teaching staff will serve as counselors. In special cases, of course, help will be sought from the Psychological Services Bureau. Second year counseling will seek to supplement the efforts of the high school counselors with regard to choices of career and admission to college.

e. The Reading and Study Course: The major problem with the special course offered this year by the Georgetown University Reading Clinic stemmed from the fact that this part of the operation had not been carefully enough devised in advance. The result was that scheduling difficulties prevented the clinic from offering a complete course. Further, only 20 of the participants took the course.

The fact, however, that those who took the partial course showed a marked improvement in reading comprehension, reading speed, and study habits indicates the value of such a course, and suggests that a full-scale course would produce even better results.

Next summer all the participants will be given a reading and study course as an integral part of the program.

f. Tours and Cultural Activities: From all indications these parts of the summer program were quite successful. Students interviewed by Dr. Willie at the end of the eight-week period indicated that the field trips and cultural activities constituted one of the most impressive aspects of the summer course.

The influence of the cultural activities was not restricted to the students themselves but extended to the parents as well. Several parents and guardians told staff members that as a result of their children's participation in these affairs they themselves became aware for the first time of the available concerts, plays, and other cultural offerings in the area and attended a number of these activities along with their children.

The major change contemplated in this part of the program will consist in effecting a greater coordination between field trips and classroom material.

3. STUDENT PERFORMANCE

Although the most important effect the program can have on the participants cannot be measured and can hardly even be discerned this early, student performance in the summer course of study and the recommendations made by the teaching staff provide the chief index to the program's initial impact. This

is particularly true when it is noted that, in the judgment of the teachers and counselors in the respective high schools, the participants' chances of being admitted into good colleges without the program's help were slender. This point must be borne in mind when the students' performance in high school is compared with their work in the program, and also when the question of aspiration is considered.

Although no grades were given during the program, the teachers at the end of the session rated the students' performance on the basis of the categories of A (Excellent), B (Good), C (Fair), and D (Poor). There was, of course, a problem of standards here since the participants were all high school students taking special courses-- that is, courses belonging to neither high school nor college-- and taught, for the most part, by college instructors. This fact was, however, kept in mind by the instructors, and the grades given reflect as accurate a judgment of the students' performance in these special circumstances as it is possible to make. And their reliability is strengthened by the instructors' recommendations that certain of the participants are qualified to take regular college courses in the various subjects.

To provide first a general view of the student's performance on a subject by subject basis, the following figures may be cited. In chemistry 21 students raised their mark a full grade or more above that received in their high school course. Of the 10 given A for their program course, only 4 had received A in high school, 1 had received B, 2 C, and 3 had not taken

the course at all. Of the 22 rated B in the program, 2 had received A in high school and 6 B, while 9 had received C. Of the remaining 5, 2 had received D and 3 had not taken the course. The improvement in chemistry was the most striking during the program.

Six of the students given B in this course were in the "risk" category at the time of selection-- that is, were not considered college potential on the basis of their general high school record.

In mathematics the students' performance in their high school course in Introductory Algebra was used for purposes of comparison. In the program 7 received A for mathematics, and of these only 2 had been given A in high school. The change on the B level was slighter, 22 gaining B for their program work as compared to 18 rated B in high school. Again, three of the students getting B in the program were in the "risk" category at the time of selection. In the entire group 19 students rose a grade or more.

In English 13 students were given A in the program. Only 5 of these had received A in their high school English course, and 7 had been rated B. For one of the A students no transcript was received. Of the 18 who were given B in the program, only 10 had received B in high school, while 6 had received C. Two had received A. Four of the B students had initially been considered risks. All told, 14 students improved their work in English by a grade or better.

As was to be expected, a number of students did more poorly in the program than they had in high school. This was markedly

the case, however, only in mathematics and, to a lesser degree, in English. In mathematics the number of D's rose from 9 to 13, and the number of C's declined from 17 to 9. In English 5 students who had received A in their high school courses were rated either B (3) or C (2) in the program, the number of B's fell from 21 to 18, and the three who were given D by their program instructors had received B (1) and C (2) in high school. The single failure of the program was also given in English. This student, however, was in the "risk" category at the time of selection.

In summary, the participants did generally somewhat better in their program courses than they had in their relevant high school subjects. In chemistry the number of A's rose from 7 to 10, in mathematics from 2 to 7, and in English from 10 to 13. On the next level (B) there was a decline in English from 21 to 18 but increases in both the other subjects-- 8 to 22 in chemistry and 18 to 20 in mathematics.

The more important figures, however, have to do with the recommendations made by program instructors respecting college potential. Since one of the primary aims of the program is to help equip students for college who, for one reason or another, were considered unlikely to qualify for the better colleges or universities, these figures provide the clearest evidence yet available as to the program's success.

Out of the 49 participants, 22 were recommended as having the ability to do college work in one, two, or all three of the subjects taken. This means that in the judgment of their

instructors these students have no further need of special courses in the areas for which they qualified and may during the next summer phase of the program take regular college courses instead. It is also likely that the majority of this group will receive a general recommendation for college when their performance in the program and in their senior year of high school is evaluated.

Of these 22, six were recommended in all three subjects, six in two of the three subjects, and 10 in one subject only. Excluding the six recommended in all three subjects, the figures reveal that in mathematics, two were recommended for mathematics alone, two for mathematics and English, and one for mathematics and chemistry.

In chemistry, there were four recommendations for that subject alone, three for chemistry and English and one for chemistry and mathematics.

Four were recommended for English alone, two for English and mathematics, and three for English and chemistry.

The full significance of these figures does not emerge, however, until the high school performances of the students are seen in relation to the recommendations they received. Of the six recommended in all three subjects, one had a high school overall average in the first semester of the junior year of A, three had B, and two had C. Among those recommended in two of three subjects, two had averages of A, three of B, and for one no transcript grade was available. Of those receiving a recommendation in one subject only, one had A, eight

had B, and one lacked a transcript.

Since recommendation in any subject was tantamount to the grade of A or B/, five of the six recommended in three subjects, three of the six recommended in two subjects, and eight of the nine recommended in one subject rose above their general high school performance.

When the recommendations are related to performance in individual high school courses, it is possible to determine something of the effect of the program in specific subjects. Among those receiving recommendations in English, four had received A in their English course in the fall semester of their junior year, and nine had received B. For two there were no transcripts.

Of those recommended in mathematics, four had received A in Introductory Algebra (the only mathematics course here considered), five B, and two C.

In chemistry, four of the students recommended had received a high school grade of A in that course, one a B, four a C, four had not taken the course, and for one no transcript was provided.

Keeping in mind that a recommendation is equivalent to an A or B/, nine of the recommended students showed improvement in English, seven in mathematics, and five in chemistry. The comparison in chemistry is somewhat blurred, unfortunately, by the fact that four of the students recommended in that subject had not previously taken a chemistry course and that for one student there was no transcript.

Aside from the unclear picture in chemistry, the most interes ting comparison is in mathematics. Earlier figures in this report painted a rather darker picture than these later considerations reveal. While a number of students did more poorly in the program course in mathematics than they had done in their introductory abgebra course in high school, this was by no means so with regard to the students recommended in that subject. Indeed, it is perhaps possible that a sharper improvement among the recommended students occurred in mathematics than in chemistry.

The improvement in mathematics in this group of students becomes even more evident when the grades they received for their second high school mathematics course (Intermediate Algebra or Unified Algebra and Trigonometry) are taken into account. Among the nine students recommended who took a second mathematics course in high school, none received an A, only four received a B, while five were given a C and one a D. In other wor ds, with regard to the second mathematics course, all of the recommended students showed improvement, and 66% of them dramatically so.

In summary, it seems fair to state that on the whole the prog ram was successful in improving the students' performance in the subjects taken, and that this was especially the case with regard to those recommended for college work. And on this last point, stress must once more be given to the fact that the participants, regardless of grades they might have had

in particular subjects in high school, were considered by their schools to be in need of special assistance in order to qualify for college.

There are yet, of course, a number of intangibles which may modify whatever conclusions the figures considered in this section seem to permit. To what degree the students recommended will continue their efforts in high school is something time alone can tell. To what degree the program's effect on the other students is delayed will also not be known for some time. For this reason, no student has yet been dropped from the program, and all those who have expressed a desire to continue with it will be reconsidered on the basis of their performance during the coming school year. While no promise can be made that they will be recommended for college, if the program can help them mature intellectually and if their high school work suggests that this is the case, they will be allowed to return for the summer of 1965.

4. SUMMARY EVALUATION

The permanent effect of the program on the students involved cannot be anticipated or measured. It may appear in their senior year in high school, in college, or even later. And in the case of those who do not go on to college it may never appear in any form that can be discerned. Nevertheless, there is, even at this early date, some reason to hope that it has been profound and beneficial.

Information collected by Dr. Willie at the end of the eight-week session bears on this point. Ten students were randomly

selected and their responses at the end of the program compared to t heir expectations at the beginning of it. Initially, the stud ents tended to express their enthusiasm for the program in such terms as "wonderful" and "great" as in such a typical statement as "I think it is a wonderful program and I enjoy it." At the end, however, while they were still enthusiastic their language was now, as Dr. Willie put it, "tempered by experience and hard work." On the whole, they tended to describe the program "helpful," "valuable," and "worthwhile"---terms revealing, in other words, a more sober and mature judgement, as well as a more realistic and practical one, than that expressed earlier. To the degree that this is reliable evidence, it suggests that the program has affected the students in the way mo s t desired, by causing them to reflect more seriously and carefully on their experience and their values.

The same conclusion seems to be implicit in their answers to D r. Willie's question "What did you learn that will remain with you as a great discovery about yourself and the world?" The responses to this question reveal a rigorous self-analysis also not to be noted earlier. "I learned," one student said, "that I was lazy rather than dumb and that the competition in the world is gr eat." Another said, "I learned that I was capable of do i ng harder work than I thought, if I studied." And a third answered, "I know that if I want to get anywhere, I'd better start sitting down and doing my work much better than I'm doing now." These attitudes are, at the very least, realistic and indicate a growth in self-awareness that it was one of the aims

of the program to foster.

On the matter of aspiration, the program generally seems to have sustained what the students brought to it and increased it where it was deficient. The above remarks of the students themselves manifest a more serious regard for their careers than they indicated earlier. At the beginning of the summer the majority of the students expressed an interest in majoring in the sciences or mathematics, 25 of the 36 indicating a choice of career. This seems not to have diminished as a result of the summer's program, and, as a consequence of the remarkable improvement in chemistry and the number of recommendations given in that and mathematics (a total of 25 as opposed to 15 in English), the percentage probably increased. Aspiration is, of course, difficult to appraise, but it should be kept in mind that a large number of these students were considered by their schools to have problems of motivation. In view of this, the fact that all 49 continued with the program to the end and did, generally speaking, 80 to 90% of the work suggests that the program's effect on their aspiration was largely to the good.

Another feature to be considered in a general evaluation is the effect the program had with regard to bringing the students into a college atmosphere. Several commented on the friendly attitude revealed towards them by other Georgetown students, and this was of great importance to young people who have had good reason to believe themselves rejected by society as a whole. The students' appreciation of the kindness and consideration, and also respect, shown to them by their teachers also reflects on this

aspect of the program. As Dr. Willie again phrased it, "They certainly discovered that many persons in the mainstream of society accept them as persons."

In connection with the personal impact of the program on the participants, the cultural activities also made their co n tribution. One of the convictions informing the program was the belief that many disadvantaged youth are discouraged from seeking admission to the better college because it represents a cultural world in which they are strangers and ill at ease, a world existing fbr the pleasure of those better off than they. As a result of this summer's experience, the participants have acquired some knowledge of that world and have discovered that they are capable of responding to it and enjoying what it has to offer. This means that their life is now fuller than it was before, that they have gained new insights into themselves and the human situation, that their sensibilities have been strengthened and enlarged, and that the territory of the arts is no longer completely alien ground. This new awareness, coupled with the realization that they can be well received on the campus of the established university, may play a considerable r o le in the choice of college or university to which they will seek admission.

Finally, and perhaps most important of all, these young people have demonstrated to themselves their ability to remain with an arduous program of study and to do satisfactory and in many cases more than satisfactory work. Especially important is the fact that they were on their own, they were not pressured

into working, and there were no immediate and tangible rewards held out to them. What drove them, therefore, was their own interest and self-discipline. And although the courses cannot altogether be equated with college work, the standards were high and probably closer to those employed in college than in high school. The chemistry course, for example, amounted to the first third of the regular college course in that subject. In other words, that the participants were able to take college or near-college courses in a college atmosphere and in the majority of instances to meet comparatively rigorous standards of performance must have served to increase their confidence in their talents and in their capacity, given the effort they made this summer, to work above the levels their circumstances might well have held them to. If the students performed beyond the expectations of the staff, they in all likelihood performed beyond their own expectations as well. What this will mean to them over the years cannot now be said. There is reason to hope, though, that it will mean a great deal.

In spite of these ways in which the program has so far seemed a success, there are several aspects of it which could be improved and certain changes which need to be made. Changes respecting the course content have already been discussed in this report, and attention will be given here to larger matters. In the first place, there should be even closer cooperation between the high schools and the University. To this end, the director plans to bring into the program a number of teachers and counselors from the schools involved. This will enable the program to draw on the experience these people have

had with the students and on their knowledge of the personal problems and the family and general circumstances hindering the students from the full realization of their abilities. And by giving persons from the high schools the opportunity to work in the program, this policy will also assist the schools in developing their own projects of this kind.

There is also some need to exploit the possibilities of the program further. More extensive library assignments are being considered, and scheduled study periods where the students could be given more help are being planned. The general schedule itself is being revised in order to give the students more time on the campus for guidance and counseling and also to provide them the opportunity for making more extensive use of the University facilities.

But the major change has to do with recruitment. As Dr. Willie pointed out in his report, the program has not been able to reach students from families in the most severe circumstances. The fact is that most of these children have to work during the summer. To bring them into the program, funds are needed to supplement the family income to the extent of the wages the student might have earned had he not attended school, and it also needs to lower its general age level. In other words, students in the first year of the program should have completed the tenth rather than the eleventh grade. If this were the practice, the program would reach children who must work after the eleventh grade, but who are too young to work after the tenth. Economic factors would not, then, prevent such students from participating in at least the

first year of the program. And if the supplementary funds were available, they would be able to continue with the program in the second year.

This change would also permit the program to work with the participants over two school summers instead of the present one. In addition, they would have two full years of high school in which the effects of the program could mature. There would also be more time for the somewhat lengthy task of assisting them in gaining admission to college and in acquiring the financial help they need.

A final advantage to this new policy lies in the fact that the program might be able to influence its participants in their choice of high school track. If a student wishes to change track, he must do so before the eleventh grade. As the program is now constituted, it is unable to reach students who might have chosen a college preparatory track had they been provided the experience of the first summer course of study. Nor can it assist students in choosing the most suitable college preparatory courses for their junior year.

While on the whole this summer's program was successful, with these changes it should be even better in the future.