A STUDY OF ACCELERATION METHODS IN BASIC COLLEGE SOCIAL SCIENCE

By

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A THESIS

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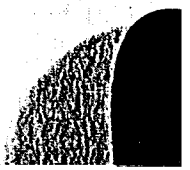

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CHAPTER I

THE SCOPE OF THE STUDY

Introduction

The acceleration of students in higher education is not a recent innovation though several of the means of reducing the length of a college course are comparatively new. The greatest use of speed-up methods was made during World War II when the drafting of men for the armed forces encouraged schools to give their students as much college work as possible before induction. Almost universally, however, the end of the war brought a return to the conventional patterns and a general reluctance of college and university faculties to continue or introduce programs expediting the progress of students toward their degrees.

Now again, with the likelihood that large numbers of young men of college age will be taken for military training, interest is developing in procedures for acceleration. The chief means usually considered are three which involve little change in curricular or credit arrangements. They are: (a) admission of students to college at an earlier age than the customary 18 years; (b) lengthening the school year, mainly through adding a full summer session; (c) allowing superior students to carry heavier than normal loads of work.

This study, however, is concerned primarily with adaptations of two other methods of acceleration which depart substantially from

traditional practices in higher education. These are found in some colleges and universities which incorporate acceleration procedures in their general education programs and in others which have favorable attitudes toward experimental changes. The two types are: (a) granting course credit by examination without or with only partial class attendance; (b) development of special classes for superior students in which courses are covered in less than the usual number of class sessions. Justification for the use of these means of acceleration is found, not in the exigencies of a national emergency, but rather in recognition of the fundamental differences and needs of college students and a desire to adopt college programs to individual variations.

Students differ widely at the time of matriculation, not only in intelligence, reading ability, and position in their high school classes but also in total pre-college background, maturity, motivation, total readiness for college work, and in the amount and range of further preparation needed to enter into adult life. Some, because of interest, excellent high school teaching and guidance, home or vocational background and level of maturity are pretty well qualified in at least some of the introductory courses. They are able to do as well or better on examinations in these subjects than many students taking the courses; or they are able with a minimum of effort to bring themselves to a position where they can meet academic standards for such courses.

Supporters of acceleration emphasize the waste of time and money of some students in requiring them to follow rigid programs set up

for the average student. Superior students can grasp ideas more quickly, work faster, and seem to mature earlier than others. But they are held back by the regimentation process which attempts to fit all students into the same credit pattern. For some reason the four year period required to complete one's college work has become almost sacred and those who suggest any shortening are looked upon with disdain. The whole structuring of American college life is around academic regulations of time and credit periods. Student affairs, class organizations, and alumni groups perpetuate the system. The amount of time taken to get a degree is supposed to be an indication of the values attained in college. If the required time is not put in the student is held to be deficient in the outcomes expected of college people. Hence the opposition to any program which reduces the length of a college career.

Dr. Detlev V. Bronk, president of Johns Hopkins University, recently declared that far too much time was lost by most students in colleges and universities.[1] He proposed that the student be permitted to take work at his own pace without regard to scheduled or semester requirements. Dr. Bronk claims that thereby the educational system would be greatly improved because men and women would find their work more challenging and much needed manpower would be saved. He suggests:

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1. New York Times, November 25, 1950, page 15, column 8, reporting a speech by Dr. Bronk before the annual convention of the Middle States Association of Colleges and Secondary Schools. Dr. Bronk was chairman of the National Research Council from 1946 to 1950 and is now president of the National Academy of Sciences.

> Let's break the lock step process that is now the accepted pattern of most collegiate systems. It is important to have the student demonstrate that he has developed a degree of intellectual competence rather than that he has acquired a certain number of semester credits.

In making such a statement Dr. Bronk is not merely stating opinion. He is supported by an array of research, some of which is reviewed here in Chapter II. Without exception the findings of actual experiments and research bear out the wisdom and validity of the practice of acceleration. This study, therefore, does not question the desirability of expediting the college programs of able students. It rather inquires into the effectiveness of two methods of acceleration.

The Background of this Study

Acceleration procedure at Michigan State College. Acceleration practice in the Social Science course of the Basic College of Michigan State College forms the basis of this study. The Basic College program consists of courses in seven basic areas: Written and Spoken English, Biological Science, Physical Science, Social Science, Effective Living, History of Civilization, and Literature and Fine Arts. Before he is permitted to transfer to an upper school a student must obtain the nine credits required in at least five of these courses. Credit is granted only after successfully passing a four hour comprehensive examination in each basic course. The comprehensive examinations are drawn up and administered by an independent Board of Examiners.

Since its inception, the Basic College, recognizing wide differences in the general educational background of its students, has

permitted the acceleration of capable students in the seven courses. Choice of students for acceleration after one or two terms in a course is made on the basis of grades obtained in the course. The policy on selection procedure is established by each department but that of the Social Science department is typical. A student in the first term with an A grade at mid-term may obtain "special permission"[1] to take the comprehensive examination if he also has an all college grade point average of 1.5[2], the recommendation of his instructor, and permission of the head of the department. A student in the second term of Social Science may accelerate if he has had an A or a B in the first term and at least a B at mid-term in the second term of the course and meets the other above requirements. Having qualified for "special permission" the student is on his own to prepare himself in those units of the course not covered in class.

Questions arising about current acceleration practice. It is to be expected that many questions would arise concerning the operation of the Basic College acceleration program, both because it is an innovation in educational practice and because of the operation of the program itself. The most frequently recurring questions are:

(1) Can students, selected by grade in the first or second term have as adequate a knowledge and understanding of the concepts of the

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1. "Special permission" is the term used (at Michigan State College) to designate the policy of allowing students to take the comprehensive examination after one or two quarters work in the course. The term "special permission students" is used synonymously with "accelerated students" in this study.

2. The grade point system used at Michigan State College when this study was made used the following grade values: A-3, B-2, C-1, D-0.

whole course as those students taking all three terms?

(2) Is not selection of students for acceleration actually made on the basis of intelligence and reading ability?

(3) Are there not better means of selecting students for acceleration?

(4) Do not students who are excused from class attendance in part of the course miss some of the tangible and intangible objectives of the course?

(5) Is sufficient guidance given students in their independent preparation of areas of the course not covered in class?

(6) Would not students gain more of the objectives of the course through the direction given in an abbreviated class covering the whole course?

(7) How do students differ at the time of college entrance, not only in intelligence, reading ability, etc., but primarily in knowledge and understanding of the main concepts developed in the Basic College course in Social Science?

The approach made by this study. This study has grown out of the attempt to solve some of the problems encountered in the acceleration program of the Basic College. It does not purport to present answers to all the questions which have been raised. Rather, it is limited to the consideration of only three.

First, can a one-term accelerated course be successfully organized? Is it possible to adequately cover a three-term Social Science course, for a select group of students, in one term?

Second, do students taking such a one-term accelerated course evince a level of achievement on the comprehensive examination (as analyzed by units of the course) significantly higher than that of students accelerated through established procedure who make preparation under self-direction on units of the course not covered in class? Also, are there significant differences between students accelerated by either means and those taking the regular three term course?

Third, what are the essential differences in the background of students at the time of college entrance which have a bearing upon competence in social science and hence upon possible accelerations?

The Major Hypotheses

Four major hypotheses are tested in this study on the acceleration of students in Basic College Social Science.

(1) Students (selected by a social science pre-test) who participate in a one-term special class so increase their knowledge and understanding of social science that they attain significantly higher levels of achievement on the items of the comprehensive examination pertaining to the nine units of the course than each of the following groups.

(a) Students in thsir first year in college accelerated on the basis of grades obtained in the first term of the Social Science course.

(b) Students in their second year in college accelerated on the basis of grades obtained in the first term of the Social Science course.

(c) Students with a varying time in college accelerated by grades obtained in the first and second terms of Social Science.

(d) Students having all three terms of Social Science whose scores on the comprehensive examination are in the same range as those of the one-term special class.

(2) Any differences discovered between the five groups of students examined under the first hypothesis cannot be attributed to differences in ability as shown by decile ranking on the American Council on Education Psychological Examination and the Cooperative Reading Test. Another factor or factors are present to account for such differences in achievement on the comprehensive examination.

(3) Gains on units of the Social Science course made by students of the one-term experimental class are greatest in those areas not specifically covered by high school work.

(4) Significant differences exist between the groups of students in the study in such background factors as home influence, high school social science preparation, organizational activity, and reading habit and interest background.

Underlying Assumptions

Several assumptions are fundamental to the experimental and analytical work undertaken in this study.

(1) The Social Science course as organized and offered at Michigan State College adequately meets the purposes of a general education

course in the social sciences. Though under gradual and constant revision, never fully satisfying the demands of the teaching staff, the course enables the freshman or sophomore student to achieve an understanding of the world of human social relationships commensurate with his ability and maturity.

(2) The comprehensive examination adequately measures the attainment by the student of the objectives of the Social Science course. The examination provides the Board of Examiners with evidence of the factual knowledge acquired by the students as well as their grasp of the concepts necessary to a scientific understanding of the world of human social phenomena.

Although necessarily based upon the particular social science course offered at Michigan State College, the comprehensive examination provides an appropriate vehicle for determining the extent to which students who have not taken the course have gained a level of understanding justifiably expected of students in their freshman or sophomore years in college.

(3) The acceleration of qualified students in Basic College Social Science is a desirable practice. The supporting rationale and the existing research offers sufficient evidence on the advisability of recognizing the differences in the degree to which students already meet the stated objectives of the course and the variation in time which such students can progress through a college course. The belief is that the student who excels his fellow students in background and ability cannot rightfully be held to the same pace through his basic

courses as the average or below average student. The maturing influence of more advanced courses are more beneficial to him than forcing him into a rigid program which does not fit his real needs.

Procedures Used in this Study

Experience in acceleration. The literature on all five types of acceleration, as practiced in American colleges and universities, is reviewed in Chapter II, with special emphasis upon those where existing research may have a bearing on this study. Attention is given to the research findings of the Board of Examiners of Michigan State College on acceleration in the Basic College, which are of particular importance to this study.

The Basic College Social Science program. The organization and objectives of the Basic College are explained and the rationale of the comprehensive examination system is set forth in Chapter III. The place of the Social Science course in the Basic College program is delineated. The peculiar nature and purposes of the course are presented with a rather complete review of the objectives and content of each of the nine units of the course. This is of special importance inasmuch as the achievement of the groups of accelerated students is analyzed on the basis of these units.

An experiment in acceleration. A group of freshman students, selected by a social science pre-test, are given the three term, nine credit Social Science course in one term. The methods used in the class and the data obtained concerning the operation of the class are reviewed in Chapter IV. Student attitudes toward this type of

acceleration are summarized. The gains in knowledge and understanding during the term are analyzed by units of the course.

The accelerated class compared with other accelerated and non-accelerated groups. A comparative study is made (in Chapter V) of five groups of students who took the Social Science comprehensive examination at the end of the Fall term, 1948. The first group consists of the 28 members of the experimental class. A second group comprises 25 first term Social Science students in their first term in college who are accelerated because of A grades in the course. A third group is composed of 10 students from first term Social Science classes who are in their fourth term in college. They, too, are accelerated as the result of A grades. The fourth group has 43 students accelerating from the second term of Social Science, chosen largely on the basis of B grades in their first and second terms in the course, but who have been in college a varying number of terms. The last group is made up of 47 students who had all three terms of Social Science. This group was drawn from the sample used by the Board of Examiners in making its studies, but including only those who made scores on the comprehensive examination within the same range as those of the experimental class.

The four accelerated and the one non-accelerated groups are compared in their achievement on items in Part I and Part II of the Social Science Comprehensive examination pertaining to each of the nine units in the Social Science course. Basic to this study, therefore, is the obtainment of 18 scores for each of the 153 students in the five groups.

The statistical technique of the analysis of variance is used to determine whether there are significant differences between the groups of each unit of the course as indicated in Parts I and II of the examination. If an "F" ratio appears which is significant at the one per cent or five per cent level the "t" test of significance is used to determine whether there are significant differences at the one or five per cent levels, between all possible pairs of groups. Thus an indication is given concerning the relative achievement, on each unit of the course, which each group shows with every other group.

Factors in the background of students contributing to competence in social science. To aid in the understanding of students who take Social Science and to determine whether significant differences exist in the backgrounds of the groups of students included in this study an investigation is made into the factors which may possibly contribute to competence in social science (Chapter VI).

Data for this study were gathered by questionnaire from 306 students in six groups. Members of all groups started the Social Science course in the Fall term, 1948. Three took the comprehensive examination given that term and were the same groups used in the studies in Chapter V: the experimental one-term class (28 students), 25 first year students accelerated from the first term in Social Science, and 10 second year students also accelerated from the first term of the course. Two groups of special permission students from second term courses took the comprehensive examination at the end of the Winter term, 1949. One of these consisted of 101 students in their second

term in college, the other of 51 in their fifth term. The sixth group is a random sample of 91 students having all three terms of the course and taking the comprehensive in the Spring, 1949.

Information was received from these students on such factors as size of home town, size of senior class, size of family, occupation and education of father and mother, participation of parents in community organizations, discussion of political, economic and social questions at home and with friends, reading habits in newspapers and magazines, courses taken in high school, etc. Also included were the attitudes of students concerning the value of the above factors in understanding the content of the Basic College Social Science course. Statistical determination of the differences between the groups of students on some of these factors is made by a comparison of means and the use of the chi-square technique. Free responses by the students are also used to estimate the importance students place upon certain background factors in influencing an understanding of the field of social science.

Conclusions and recommendations. Chapter VII presents a brief resume of findings on the four major hypotheses and points out some of the limitations of the study. The writer's conclusions are given, based not only upon the results of this study but also upon experimental and research findings in other colleges and universities. Recommendations are made on the use of a social science pre-test for the selection of students for acceleration, procedures for a condensed course for superior students and further evaluation of acceleration practices.

Summary

This study attempts to add to the research now available concerning the speed with which students of differing ability are able to adequately complete certain courses in the college curriculum. It includes a one-term accelerated experimental class in Social Science for a select group of students, a comparative analysis of the achievement of the experimental class with three other groups of students accelerated by different means, and a group of non-accelerated students. Also added is a study of background factors contributing to competence in Social Science at the time of college entrance.

CHAPTER II

EXPERIENCES IN THE ACCELERATION OF STUDENTS IN AMERICAN COLLEGES

The relationship of this study to past and present use of methods of acceleration in numerous American colleges and universities can only be appraised through a review of such experience. Experimentation and research is not extensive hence the literature in the field is meager. Institutions of higher education have been reluctant to change credit and course requirements to permit students of ability to hasten the time of graduation. Nevertheless, the experimentation that has been carried on, the resulting research, and the consequent thinking does provide a necessary background for the contributions which this study may make.

Though we are here primarily interested in only two methods of acceleration this chapter reviews experience in all of the five types listed above, i.e., acceleration by early college entrance, by lengthening the school year, by taking heavier than normal course loads, by examination without class attendance, and through special classes or programs.

Acceleration by Early College Entrance

Support for the practice of allowing superior students to complete their college work in less than the normal time is not new in American education. Though not generally accepted by those on college faculties

and in administrative positions, nevertheless, some of the leaders in higher education have, for many years, expressed belief in the advisability of acceleration procedures.[1]

Early studies at Harvard University. In 1888 President C. W. Eliot of Harvard expressed concern at the gradual lengthening of years necessary to complete a college education, thus unduly prolonging the time when a professional man is able to support himself. He offered a few suggestions for shortening pre-college education. In his annual report for 1908-1909 President A. Lawrence Lowell of Harvard said, "There is thus good reason to suppose that boys could be prepared for college younger than they are, and that it would be an advantage for them to come younger."[2] In his 1913-1914 report President Lowell states his position even more vigorously:[3]

> Carefully compiled statistics show that men entering college young are on the average better, both in their studies and their conduct.....The means of education are quite within the reach of the youth who is well prepared for admission at that time (seventeen years), and, paradoxical as it may appear, he is in fact more likely to take advantage of them. He is at the period of life when his intellectual powers are growing rapidly, and when it is a natural process to develop those powers by exercising them without too much regard for the direct use to be made of the knowledge acquired. In short, there is a normal time for general education..... Much has been said about maturity, but that is the result less of age than of environment and responsibility. Maturity may easily become over-ripe.

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1. Much of this chapter surveying previous studies in acceleration is based on the only thorough work on the subject: Sidney L. Pressey, Educational Acceleration; Appraisals and Basic Problems (Columbus: The Bureau of Educational Research, Ohio State University, 1949).

2. Lowell, A. Lawrence, At War With Academic Traditions in America, (Cambridge, Massachusetts: Harvard University Press, 1934), p. 245.

3. Ibid., pp. 255-56.

The opinions of President Lowell were based upon several investigations, chief of which probably was that made in 1913 by H. W. Holmes, dean of the School of Education, who reported a study of 5,769 Harvard undergraduates over the school years 1902-12 inclusive. "The youngest students had the best academic records, proportionally most often graduated with honors, and presented fewer disciplinary problems."[1] Other studies since then are in virtual agreement. Pressey gives data from studies made at Columbia in 1915, the University of Minnesota in 1910 and 1911, Northwestern University in 1929 and others, all of which agree that early age at college entrance for superior students is no handicap but rather an advantage.[2]

University of Buffalo's studies on differences between superior young students and others of equal ability. The University of Buffalo conducted extensive studies in the early thirties in an attempt to discover whether differences existed between the young and superior students and those students of equal ability who varied only in age. The young or experimental group included all students, 57 in number (32 men and 25 women), who entered the College of Arts and Sciences of the University of Buffalo at the age of 16 or under during the years 1925 through 1928. Each member of the control group, selected from students whose average age was two years greater, was matched with one of the accelerated group on sex, percentile ranking on the American Council

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1. Ibid., p. 6, with a footnote giving the source as: Holmes, H. W. "Youth and the Dean: the Relations between Academic Discipline, Scholarship, and Age of Entrance to College," Harvard Graduate Magazine XXI (June 1913), pp. 599-610.
2. Ibid., pp. 6, 7.

Psychological Examination, size of high school attended, position in high school class, and marks on Regents' examinations. The conclusions as summarized in this study are:[1]

> The study.....demonstrates beyond question that the young student is superior to the average college freshman when his ability is measured by such methods as performance on the American Council on Education Psychological Examination. The young student's high school preparation is as complete as that of the average student when completeness is determined by number of high school units presented for college entrance and by quintile position in the high school graduating class. The young student's accomplishment compares favorably with that of the more mature student of equal ability and similar background. Finally, the young student participates to a considerable extent in extra-curricular activities, and he continues his education fully as far as his older brother.
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> This study shows that the enriched curriculum seldom functions as an educational device to meet the needs of the more able students. At present acceleration constitutes the most practical and the most commonly accepted solution to the problem of what to do with the superior student. The students making up the experimental group of this study displayed not only the ability to progress more rapidly than the average student but also showed themselves capable of keeping abreast of the superior student of normal age in the college population. Taking these findings into consideration it would seem that acceleration of the particularly able child should be given more attention and intelligent direction on all levels of our educational system.

Ohio State Studies on relation of student age to college success.

Pressey reports the findings of several studies at Ohio State University regarding the relation of age of college attendance to success. They all indicate that early beginning and completion of college programs tend to make for success in college and in adult career. The studies were

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1. Sarbaugh, Mary E. "The Young College Student", Studies in Articulation of High School and College: With Special Reference to the Superior Student, University of Buffalo Studies, Vol. IX, Series I (Buffalo, New York: University of Buffalo, 1934), pp. 72, 73.

made of 3,021 students who entered one of the five undergraduate colleges of Ohio State University in the autumn quarter of 1936. It was found that students entering young are more likely to graduate than those entering older. Seventy per cent of those entering at sixteen years of age who scored at the 80th percentile or above on the ability test at entrance, were graduated. The percentages of those of other age groups, within the same ability range, who graduated were: 67 per cent of seventeen year olds, 56 per cent of those entering at eighteen, 45 per cent at nineteen, 58 per cent at twenty, and 53 per cent of those entering at an age above twenty years.[1]

Pressey also shows that students graduating young also tend to make better academic records than those graduating at the average age. Of the 2,055 graduates from the five undergraduate colleges of Ohio State University in the years 1941-42 and 1943-43 who had taken all their college work at Ohio State University the 5 per cent of the total group graduating at the age of twenty or younger are clearly highest in ability; next those graduating at twenty-one. "Graduates twenty years of age or younger had point-hour ratios of 3.60,[2] or over, ten times as often as those graduating at twenty-four, although twice as many were in the upper tenth on the entrance test. Furthermore, when twenty-year-old graduates were paired with students of the same sex and the same ability, graduating at twenty-three and twenty-four,

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1. Pressey, op. cit., p. 60.
2. Under the Ohio State system an A is 4 points, a B is 3 points, a C is 2 points, and a D is 1 point.

it was found that the younger students had an average point-hour ratio of 2.74, as compared with 2.48 for the older students. All in all, it seems reasonable to conclude that the younger students make better students, and that there ought to be more of them."[1]

The social adjustment of younger students. One of the most frequent criticisms of acceleration is the supposed lack of social adjustment of younger students who are physically and socially more immature. Of the many studies that have been made on this question all of them show the younger student to be as well if not better adjusted than his older classmates. Pressey summarizes the following studies.[2] Gray found that the 154 entrants under sixteen at Barnard and Columbia "participated in and gained more recognition in athletic and non-athletic and extra-curricular activities than did a similar number of students chosen at random."[3] Husband in his Dartmouth studies found that students who entered college under seventeen years of age had held the major number of class offices by the senior year.[4] At Ohio State it was found that among those graduating in the school years 1941-42 and 1942-43 only 15 per cent of those under 21 were not listed in the college yearbook as having participated in some extra-curricular activity as compared with 38 per cent of those over 24 years of age. Those who were twenty-one

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1. Pressey, op. cit., pp. 63, 64.
2. Pressey, op. cit., pp. 8, 9.
3. H. A. Gray, Some Factors in the Undergraduate Careers of Young College Students, Teachers College, Columbia University, Contributions to Education, No. 437, (New York: Teachers College, Columbia University, 1930), p. 60.
4. R. W. Husband, "Studies in Student Personnel at Dartmouth", Journal of Personnel Research, II (May, 1923), p. 76.

or younger when they graduated held office more often than any other age group.[1] The above studies assume, of course, that participation in activities is an indication of satisfactory adjustment to ones fellows during his college career.

Another approach to the question of the social adjustment of students who are younger than average upon college entrance is through the attitudes of the students themselves. As a result of questionnaires given to early entrance students at the University of Pennsylvania, Silverman and Jones found that of students who had entered under eighteen only about 5 per cent "felt that due to age they were at a disadvantage in social life, in opportunities for leadership, and in athletics."[2] Keys reported that 17 per cent of students entering college under 16 years 6 months considered their contacts with fellow students unsatisfactory or unfortunate, while similar opinions were held by only 6 per cent of the controls who entered college at seventeen or older. Keys does not consider this a significant difference especially since there was little attempt at careful selection for acceleration and with no constructive program in college aiming to aid the accelerated student in social adjustment.[3]

Occupational success of the young college graduate. Another frequently heard criticism of acceleration is that although the younger

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1. Pressey, op. cit., p. 64.
2. Y. Silverman and Vernon Jones, "A Study of Early Entrance to College", Journal of Educational Psychology, XXIII (January, 1932), p 71.
3. Noel Keys, The Underage Student in High School and College, University of California Publications in Education, Vol. 7, No. 3, (Berkeley, California: University of California Press, 1938), pp. 205-22.

student may do well in a sheltered college environment he is too young and immature for the realities of adult life. The possibilities of mediocrity and failure are greater for the accelerate than the normal person. Pressey reports three studies made at Ohio State University which indicate that early beginning and completion of college programs tends to make for success in adult careers. The first study dealt with notable individuals listed in the Dictionary of American Biography Volumes I and XV (median birth date, 1828) as compared with those listed in the 1942 volume of Current Biography, (median birth date, 1889). Of those whose biographical sketch covered a page or more those listed in the latter volume finished their schooling about three years later than the early group. Also discovered was the fact that "three times as many in the earlier group had done something of note before reaching the age of twenty-two, or during the years when the typical man nowadays is still a student in college; 23 per cent of the earlier group were already 'in production' by their twenty-sixth year..... There does seem to be suggested here the possibility that extensions of education were tending to delay productivity."[1]

A second investigation attempted to determine the relations between age of college graduation and nature of total life career for a representative sample of college graduates including those of slight as well as great success. The alumni records of Amhurst College were used as they were found to be most complete. The volume included almost all former students, with especially complete data on community status,

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1. Pressey, op. cit., pp. 68-70.

family, and occupation. The classes from 1880 to 1900 were used. The records indicated that the youngest graduates were slightly more likely to marry, and did so at the youngest age--"both highly desirable phenomena", comments Pressey. Also significant is the fact that over a quarter of the small group graduating at nineteen was nationally known with a steady drop in the proportion of such cases until none occurs after twenty-six. Failures, were moreover, more common among the older graduates rather than the younger. Pressey gives recognition to the presence of other variables such as more favorable socio-economic circumstances which may have aided the younger group. Nevertheless, "the younger graduates gained precious years in their prime, for a running start into their careers."[1]

A third investigation controlled the factor of ability at college entrance and some other factors and therefore probably obtained more clear-cut results. Seventy-one women who graduated from the College of Education, at nineteen or twenty years of age, of Ohio State University (1926-27, 1927-28, 1933-34) were paired with an equal number who graduated in the same classes but at the modal age of 22. Each pair were in the same percentile ranking on the entrance ability test and had the same final cumulative point-hour ratio. The study showed the same percentage of each group were teaching the first year after graduation and were married at the time the study was made (1945). A higher percentage of the younger group took graduate work, had achieved an administrative position, had earned $1,600 or more and were rated B or better by their

1. Pressey, op. cit., pp. 70-72.

principal or superintendent. Thus, Pressey concludes, "The evidence is that the younger graduates were under no handicap either at the beginning of their careers or later. Rather, they were more successful."[1]

Acceleration by Lengthening the School Year

The previous section was concerned primarily with acceleration resulting from early college entrance though data were presented in support of graduation before the modal years, by whatever means attained. In this and succeeding sections we shall consider American college experience with methods of acceleration which shorten the traditional three years nine months span from college entrance to graduation.

The most widely and extensively used method of expediting the completion of an academic program is that of extending the college year. Altering the calendar to keep the institution in session for a longer period of time requires fewer adjustments of conventional educational procedure than are demanded by any other method. No reorganization of courses is necessary, no alteration of credit requirements need be made, little overturning of time-honored course and examination procedure is asked for. It is little wonder that programs of acceleration have usually been thought of as synonymous with a lengthened school year.

World War II experience. Many colleges and universities have long maintained summer sessions by which students could complete their total undergraduate work in less than the normal time. Considerable expansion of such programs, however, came with the entrance of the United States into World War II. The stimulus presented by the drafting of men of

1. Pressey, op. cit., pp. 72, 73.

college age into the armed services; plus the increased need for dentists, physicians, scientists, and technically trained men led most institutions of higher education to add appreciably to the college year. A fourth quarter or a third full semester were not at all unusual. Of 947 institutions replying to an inquiry by the Office of Education the resulting tabulation showed that only 18 per cent retained the regular two-semester or three-quarter plan with no summer session.[1]

There seems to be no data giving the total number of students taking advantage of summer sessions to reduce the length of their college career. The figures presented by Pressey may, however, be indicative of the trends during the war years. At Ohio State University, of those graduating in the school year 1941-42, 44 per cent had been in attendance at one or more summer schools. The purpose usually was not to graduate earlier, but rather to make up for some other quarter off, part-time attendance, or poor work. However, by 1944-45 the percentage of students graduating who had attended one or more summer quarters jumped to 94 per cent. Obviously the war was the direct cause and acceleration the main purpose. Students attending three or more summer quarters jumped in the same period mentioned above from 4 per cent to 36 per cent.

Studies on the effects of the lengthened school year. Few studies have been made of the effects upon students of a lengthened college year. Almost the only appraisals have been opinion polls of administrators and faculty members. The great majority are opposed to

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1. Quoted by Pressey, op. cit., p. 21.

acceleration of any type but to most of them acceleration means the extended year.[1] Following the war, therefore, most colleges and universities returned to their pre-war calendars.

One of the few systematic appraisals of the lengthened school year as a method of acceleration was made of students in the College of Engineering, Ohio State University at the end of the winter quarter, 1943. Students who had attended summers were paired, as far as possible, with others who had not, as to age, class, ability, field, and residence in Columbus or elsewhere. In the sophomore and junior classes 91 such pairs were found. Median point-hour ratio for the "no summer" students was 2.4, and for those who attended one summer and two summers 2.35. Thus there seemed to be no consistent relationship between summer attendance and scholarship. Those studied were, of course, men subject to the draft, at a period relatively early in the war.[2]

Another study was made of women graduates who over a four year period had carried average loads of academic work. They were grouped according to the number of summers attended. The first group attended no summer session, the other groups attended their last one, two, or three summers previous to graduation. The data as summarized by Pressey[3] showed all four groups to be similar in ability upon college entrance and also in academic achievement their first year. The group who attended their last two summers, however, had much the higher point-hour ratio in their freshman year, although this group also showed a larger

1. Pressey, op. cit., pp. 22-25.
2. Ibid., pp. 114, 115.
3. Pressey, op. cit., pp. 115, 116.

percentage of students whose point-hour ratio in their senior year dropped below their first year's average. All groups revealed that less than half of the students received marks during their last year which were below those for their first year courses. Pressey explains this phenomenon on the basis that marks for senior courses tend to run higher than those for first year courses. He does not infer, as it seems should be the case, that many of those taking summer school work in their last years in college may be doing so because of difficulty with upper college courses. The above investigations, therefore, show little advantage or disadvantage (in the matter of course grades) accruing to students accelerating by undertaking a lengthened college year. Clearly, more thorough-going studies are needed.

Student attitudes on the lengthened school year. Of equal importance with the effects of a lengthened school year upon scholastic achievement are the attitudes which students themselves have toward such acceleration. Here, too, the chief work has been done at Ohio State University. Between 1943 and 1946 several groups of students, both regular and accelerated, were questioned through written inquiry and interview. The purpose was to determine whether students who accelerate experience any effects upon health, recreation, social life, or opportunity for employment. Pressey summarizes part of this investigation pertaining to engineering and medical students as follows:[1]

> On (the) inquiry form, the engineering students showed substantial opposition to acceleration, which was, for most of them, by summer attendance. A strong and increasing opposition was

1. Ibid., pp. 116, 117.

> also shown by medical-school students, whose accelerated program consisted almost entirely of a lengthened school year. They complained of limited social life, fatigue, and excessive amount of work. Thus the inference is that, although these men may for the most part have maintained good academic standards, they did so at a cost of narrowed experiences and a drain on energies.

Another group studied consisted of women students from the Colleges of Agriculture, Arts, Commerce, and Education whose curriculums were less strenuous than those of men in the engineering and medical schools. Moreover, their programs were more flexible. They could accelerate as much or as little as they desired. Four hundred and forty-four non-accelerates proceeding at the normal pace were included in the study, together with 73 who completed their undergraduate program in three years, 49 who at that time were taking 20 or more credit-hours of work, 101 who were employed part-time while attending school, and 103 who had attended the previous summer, most of whom had been in school at least seven quarters previously.

In reviewing the figures for the group of women who had attended the previous summer, Pressey states:[1]

> Hence slightly more of these women than those in any other group reported being fatigued most of the time and feeling that their education was too hurried. They least often thought they would desire an accelerated program if they were to drop out of school and return later. More of them than of any other group of accelerated women felt it most worth while to devote summers to rest. That a quarter of them were working for money while in school not only indicates an added burden but suggests that summer attendance may more often, by eliminating full-time summer work, make part-time employment necessary while in college. That summer attendance tends to prevent experience in employment is shown by the highest percentage of all groups in the table, who had never earned money. In short, these inquiry-form replies suggest that continuous attendance was sometimes a burden and

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1. Ibid., p. 117.

limited off-campus experience for some. The differences are so small as to be of questionable significance, each taken by itself. Taken together, they show a consistency suggesting that four-quarter attendance was of doubtful desirability for many students. Further information was obviously desirable.

For a more complete understanding of student attitudes toward acceleration a crew of student interviewers interrogated other students in as informal a manner as possible. The reports emphasized the strong influence which time-honored educational practices have upon student attitudes.[1] During their whole previous educational experience summer vacation had meant freedom from school. The regular four year college curriculum was accepted as highly desirable and good and any variations therefrom were assumed to be undesirable. Education should not be hurried. Any attempt to do so would result in preparation less thorough and valuable. Furthermore, the student would get out of step with students in his class with whom he was already assimilated. He would lose out as a candidate for organizational offices during his final year in school. These are very real factors affecting the attitudes of students toward acceleration. Nevertheless, of the 72 women who completed a college program in three years or less, 29 commented favorably on summer attendance, 21 unfavorably, and the remaining 26 gave no special reaction. The reasons given in favor ranged all the way from more desirable weather to more frequent dates to increased ease in making good grades.[2] On the unfavorable side personal difficulties such as those related on the inquiry appeared. Such varied findings would

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1. Pressey, op. cit., p. 100.
2. Ibid., p. 117.

seem to show, therefore, that personality differences and personal circumstances dominated the attitudes toward acceleration.

As a result of these studies Pressey concludes that four-quarter attendance may or may not be desirable, depending upon the peculiar needs of the individual student.[1] Some, who come to college with a background of rich experiences, or who, because of advanced age desire to complete their work for a degree in the shortest possible time--would find acceleration highly to their advantage. Others would find travel or work in line with their expected vocation an educative experience. Adequate educational planning should make provision for such experiences and colleges should give credit for them. Field work for college credit is already recognized in engineering, public administration, forestry, geology. It may well be expanded to other areas so that experiences of educational value may be obtained the year around.

Acceleration by Taking Heavier Course Loads

Next to summer school attendance the most frequently used method of hastening college graduation is by carrying more than the normal number of hours of work each term. Eckelberry reports a survey of acceleration practice in American colleges which revealed that 76 per cent or 320 of the 422 colleges reporting used this method of allowing students to accelerate. Of the 310 replying to this particular question 91 per cent indicated that the privilege was given to abler students only. Nine per cent said it was open to all.[2]

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1. Pressey, op. cit., pp. 118-119.
2. R. H. Eckelberry, "Acceleration in College", Journal of Higher Education, XIV (April 1943), 176.

Studies on the achievement of students carrying on excess schedules. Although widely used, and greatly expanded during the war, few colleges have made any systematic investigation of the effects upon students taking more than the conventional number of courses. In general, the practice is frowned upon, but with little support resulting from actual research. Here again, the Ohio State University has made some pioneer studies.

C. W. Reeder, Dean of the College of Commerce, reviews the results of a study of 731 students in the College of Commerce, Ohio State University, from the Fall term 1942 to the Spring term 1944, who carried excess schedules.[1] An excess schedule was defined as one that exceeds a normal load of fifteen academic hours, not including physical education or military training. Permission was granted each student to carry an excess schedule after consideration of the following factors: his previous point-hour ratio, maturity resulting from previous college experience, his need to save time, his intellectual capacity to earn good marks.

One-half of all the students who carried these heavier schedules had better than a B average. The other half were not far below. Reeder summarizes the results: "Students with 18 hour schedules will perform according to the following pattern: 25 per cent will earn a point-hour ratio above 3; 50 per cent, 2.75; and 75 per cent 2.25. When the schedule of hours is stepped up to 19 or more, the following result is likely

1. C. W. Reeder, "Excess Schedules", Journal of Higher Education, XVII (February 1946), pp. 99-101.

to occur: 25 per cent will earn a point-hour ratio above 3.5; 50 per cent 3.0; and 75 per cent will be above 2.5."[1]

Reeder concludes from this study that the benefits accruing to certain students who are permitted to carry excess schedules justify the practice. Scholarship records do not suffer and it helps maintain the morale of students whose interest and ability make it possible for them to carry heavier than normal loads.

Pressey relates the outcomes of another survey at the Ohio State University which included all the graduates of the Colleges of Agriculture, Arts, Commerce, and Education in the school years from 1941 through 1945. Two thousand two hundred and eighty-one students having a median point-hour ratio of 2.64 were classified according to their average loads. The investigation found that the heavier the student load the better were the grades. Median point-hour ratio increased steadily as student course load increased--from a low of 2.46 for those taking less than fourteen hours to a high of 3.35 for those carrying twenty hours or more.[2]

Two other studies at Ohio State University are of interest. One compared the median point-hour ratio of students carrying a varying number of hours of work in their freshman year with the same group of students carrying a varying number of hours of work their senior year. The analysis showed that in both the first and last years those with heavier loads did better scholastically.[3]

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1. Ibid., p. 100.
2. Pressey, op. cit., p. 120.
3. Ibid., p. 121.

The other study considered graduates who had carried average loads their first year in college. This group was then divided into two subgroups, one which continued to carry an average load their senior year and another which carried two or more hours of work their last year. "Of the 312 students who kept to average loads in the senior year, 69 per cent made higher point-hour ratios in their senior year than as freshmen; but of the 111 students who increased their loads, 80 per cent made higher senior records. Students with heavier senior loads may have had better ability or special need or motivation. But in any event, no unfortunate academic effects follows."[1]

The above studies may be questioned on the assumption that students carrying heavy loads are naturally students of superior ability who would receive high marks no matter what amount of work they carried. In order to analyze the effects of excess course loads at Ohio State University, 134 students were paired on the basis of percentiles on the entrance general ability test and their point-hour ratio at the end of the first year. Seventy-five per cent of those taking average loads their senior year scored above their freshman records, while 78 per cent of those carrying heavier loads their senior year had a higher point-hour ratio than in their first year. Thus, those taking heavier loads their senior year were slightly superior to those who did not, but likely not significantly so.[2]

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1. Ibid., pp. 121, 122.
2. Pressey, op. cit., p. 122.

Studies on the personal effects of heavy course loads. The consequences on the personal lives of students carrying heavier than usual number of course hours has also been investigated through the same questionnaire and interview program described above in connection with acceleration by a lengthened school year. Forty-nine women students taking 20 or more credit hours of class work were questioned. The majority reported that no serious difficulties were found in regard to their social life, health, or leisure for reading or sports, though a third stated that they would not carry an excess load were it not for the war emergency. The amount of time given to studying was not much greater than that for the average non-accelerated student.[1]

Of the 72 women students who were interviewed[2] 12 were opposed to heavy schedules for one reason or another such as not carrying an excess load in the summer. Nevertheless, 26 did favor a heavy schedule, 8 stated that they used their time to better advantage, and 4 said they proferred heavy to light course loads.

Further investigation is certainly desirable but it seems evident that due to the differences in ability and interests of students in our colleges greater variations in course loads could well be made. The question arises, however, whether curricular revision might not also be advisable to meet the needs of students who can achieve knowledge and understanding at a faster rate than their fellows.

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1. Ibid., pp. 96, 97.
2. Ibid., p. 123.

Acceleration by Examination Without Class Attendance

One of the less frequently used methods of permitting students to accelerate is the use of the proficiency examination. Eckelberry's survey in 1943, chiefly of war-time practice, reported that of 435 institutions of higher learning replying 55 or 13 per cent indicated that credit for courses was increasingly given by examination without requiring class attendance.[1] Many added the information that such procedure was regular practice and not stimulated by the war. Some restricted the number of hours of credit earned in this manner and some allowed a student to skip a course by examination butdid not give credit. Others, at that time, encouraged the practice only by students who were drafted near the end of a term.

The University of Chicago placement test system. The institution of higher education which more than any other uses examination procedure as a means of acceleration is the University of Chicago. Since 1931 the comprehensive examination has been used as a substitute for course credit. If a successful score can be achieved on a comprehensive examination the university is not interested in the amount of class attendance. In 1938 the University of Chicago began giving entrance tests and used them rather than high school credits as the primary basis for admission. Tyler commenting on these tests states that the faculty "has become increasingly convinced that although tests and examinations are not perfect measures of educational competence they are considerably more valid and dependable than are course records and credits submitted from a variety

1. Eckelberry, op. cit., p. 178.

of institutions, representing a variety of programs, a variety of instructors, a variety of students."[1]

It was entirely logical that as the result of the experience with comprehensive examinations and entrance tests plus the evidence these gave of the wide variation in students upon entrance that in 1943 the University of Chicago should institute placement tests for the purpose of placing students in the proper place in course sequences and also to grant advanced standing to superior students at the time of entrance. Tyler states that the purpose of these placement tests is "to place students more appropriately in terms of their ability to proceed with the work in a given field and which would establish the practical equivalence of the student's present educational competence to the requirements for the degree in the College of the University of Chicago."[2]

Entrance into the College of the University of Chicago may be made by students normally ready for their eleventh grade in high school. The work toward the A. B. degree consists of three year sequences in English, the humanities, and social science, and four year sequences in mathematics and natural science, plus a "capstone course" which attempts to interrelate the whole field of study. The Bachelor of Arts degree is then given after four years of work unless the student is accelerated either by advanced standing from placement tests or through taking comprehensive examinations after independent study.

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1. Ralph W. Tyler, "Placement Tests as a Means of Determining Advanced Standing at the University of Chicago." Journal of the American Association of Collegiate Registrars, Vol. XX, (July 1945) p. 522.

2. Ibid., p. 522.

The placement test program, therefore, helps the student to profit most from his educational program by starting him at the proper place in the program consistent with his total background. A central problem, of course, is the standard of achievement to be required of the student. Should he be excused from a program of work if his level of competence as shown on the placement test is just barely above the minimum required of the student on the comprehensive examination? At the University of Chicago a student may complete a requirement with a grade of D or higher. According to Benjamin Bloom, College Examiner, and Jane Allison, Examiner, "The specification of a minimal standard of achievement does seem to be defensible in connection with general education, where the attempt is to insure that each citizen will have at least a minimal competence in certain general fields. In a specialty it might be more justifiable to insist on maximum achievement....."[1] Therefore, the policy is that a student may be excused from a comprehensive examination requirement if his performance on a placement test is the equivalent of a C and, in some cases, a high D on the appropriate comprehensive examination."[2]

What is done with the student whose score on a placement test is just below that which meets the minimum requirement? This person has some but not all of the competence required. It is probably not fair to hold such a person for a full year's course because he missed

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1. Benjamin Bloom and Jane Allison, Developing a College Placement Test Program, The Journal of General Education, Vol. III, (April, 1949), p. 213.
2. Ibid., p. 214.

exemption by a point or two. "Experience with these borderline individuals has indicated that many of them have patterns of knowledge, skill, and ability such that they can complete the requirements in much less than the usual length of time."[1] Some such students increase their competence in a field sufficiently to pass the comprehensive examination with relatively high grades by attending class sessions on areas where they are weakest, by reading recommended books, or by taking special courses which are shorter than the regular courses.

Studies on the University of Chicago program. What sort of records do these students make on the comprehensive examinations? Allison and Bloom give data on 217 students who had satisfied requirements in part, as shown on the placement test, and following advice for further preparation were given the comprehensive examinations in 1945. "Seventy per cent of these students made grades of A or B on the relevant comprehensives, as contrasted with 28 per cent of the total group of college students taking these examinations. Only 3 per cent of the students given advice on the comprehensive received grades of D or F, as contrasted with 21 per cent of the total student population. These results would seem to indicate that the placement procedures for this group were more than justified by the large proportion of the students who made high grades. It is evident that some students when given the proper advice and counsel can complete requirements at a very high level with much less than the usual amount of study and preparation."[2]

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1. Ibid., p. 215.
2. Jane M. Allison and Benjamin S. Bloom, The Operation and Evaluation of a College Placement Test Program. The Journal of General Education, Vol. IV, (April, 1950), p. 231.

Students who have been excused from the first year requirement in a subject field because of competence as shown on the proficiency examination do not seem to make as good a record on the comprehensive examination for the second year's work as might be expected. "In 1945, 115 students who had entered at the end of ten years of school were excused from the Humanities 1 or Social Sciences 1 comprehensive examinations. On the second-year comprehensive examination requirement, Humanities 2 and Social Sciences 2, 35 per cent of these students made grades of A or B, while 22 per cent made grades of D or F. The corresponding figures for all students taking these comprehensives are 29 per cent A or B and 21 per cent D or F. These accelerated students, thus, do as well as the regular College group taking the comprehensives. That 22 per cent received grades of D or F may be regarded as some indication that these accelerated students did not profit as much from the placement procedures as might have been expected."[1] The evidence seems to suggest that these students, too, would profit from the preparation resulting from being required to take the comprehensive for the first year's work.

The effect of the placement program can be seen upon examination of the amount of time students take to complete the requirements for the A. B. degree.[2] For students coming to the University of Chicago with ten years of previous schooling, three and one-half years are required. Full time for the completion of requirements is taken by 54 per cent of the students, 42 per cent take three years, and 4 per cent

1. Ibid., p. 231.
2. Ibid., p. 232.

complete the College in two years or less. The placement tests, therefore, allow many to obtain the Bachelor of Arts degree much earlier than otherwise. Students entering the College after twelve years of previous schooling will normally need about two and one-third years for the A. B. degree. Placement test results show 60 per cent require three years or more, 36 per cent two years, while 4 per cent can finish in one and one-third years or less. Generally, therefore, students entering the College after high school graduation take longer to complete the requirements for the bachelor's degree than those who come after ten years of previous schooling.

Experience at the Ohio State University. Other colleges and universities granting credit for courses by examination only, follow widely varying practices. The Ohio State University has for many years given credit for any authorized course offering upon approval of the University of at least a B on the examination. No fee is required and up to 30 quarter credit-hours may be obtained in this way. Also the 15 per cent ranking highest on the English Placement Test during Freshman week automatically receive five hours of credit in the first course in English. The Department of Romance Languages and the Department of Chemistry have most adequately developed the method of crediting and giving advanced placement to superior students. A study made in the latter department shows the highest proportion of A and B grades in the second course in freshman chemistry went to those students receiving credit for the first course by examination only.[1]

1. Pressey, op. cit., p. 126.

University of Buffalo studies. The University of Buffalo made some extensive studies in the early thirties in regard to the overlapping of high school and college subjects.[1] Finding considerable duplication of freshmen and sophomore courses with previous school preparation, an examination program was developed whereby superior high school graduates could obtain college credit upon showing satisfactory grades on examinations on regular college courses. In one year (1933) 135 students wrote the examinations. Sixty per cent of them passed, writing in fields as diverse as accounting, economics, English, French, German, history, mathematics, physics, and psychology. It should be noted that some high school teachers had become interested in the University of Buffalo plan and taught toward it. Other students worked independently. All had available, from the university, a syllabus stating the nature and purpose of the course, an outline of the content and the standards of accomplishment expected. Thus students came to these examinations to a high degree appraised of their nature.

Pressey reviews[2] some later studies made at the University of Buffalo (1936). One report shows that of 466 superior high-school students who took 726 of these examinations, 60 per cent passed, the same percentage as in the report above. An analysis of subsequent work by these students reveals that the group as a whole and especially those who passed nine or more semester hours of work by examination were

1. University of Buffalo Studies, Studies in Articulation of High School and College: With Special Reference to the Superior Student, Vol. IX, (Buffalo, New York, University of Buffalo, 1934). See Chapter XX Henry C. Mills, "Anticipating College Work", pp. 287-297.
2. Pressey, op. cit., p. 124.

distinctly superior to the entire freshmen class in the average grade-point status earned. They also had a tendency to be slightly better in those fields in which the special examinations were taken than in the remaining subjects. Reports from their instructors indicated that these students "seem to suffer no disability when they begin advanced courses in college without taking the prerequisite work in the same institution." And when the students were asked if they had been "handicapped in any way in the more advanced work by reason of the fact that they did not study the more elementary courses in college," their answers were "overwhelmingly in the negative."

Michigan State College studies on acceleration. Michigan State College has had, since 1944, a program permitting acceleration by examination for superior students in certain general education freshman and sophomore courses. Every student upon entrance registers in the Basic College and does not transfer to an upper school until he has successfully passed comprehensive examinations in at least five of the seven basic general education courses and acquired a total of 92 quarter credits with a C average. The basic general education courses are: Written and Spoken English, Biological Science, Physical Science, Social Science, Effective Living, History of Civilization, and Literature and Fine Arts. Each is a nine credit course carrying three credits a term.[1]

Provision is made whereby superior students may take the comprehensive examination in each basic course without taking the course or after one or two terms in the course upon receiving permission from

1. The nature of each of the Basic College courses is reviewed in Chapter III.

the head of the department of the basic concerned. The basis for permission varies by departments but the most common qualifying factor is grade obtained in class work plus the credit-point ratio. At least a C grade on the comprehensive is necessary to obtain the nine credits for the course. If the grade is lower than a C all three terms of the course must be taken.

Very few students take a comprehensive examination without having had at least one term of a basic course. A substantial number take the examination after one term and a much larger number after two terms in most of the basics, the reason being that an A grade qualifies one in the first term and a B in the second.

The comprehensive examinations are prepared and administered by a Board of Examiners which is administratively separate from the Basic College. A number of studies have been made by the Board of Examiners which are of interest here inasmuch as they deal with students who are accelerated through taking the comprehensive examinations before completing the normal class work in each basic course.[1]

Table I presents a composite study of the Spring term 1948 grades on comprehensive examinations achieved by students taking all three terms work[2] in all of the seven basic courses as compared with "special permission"[3] students who took comprehensive examinations after one or two terms work in the basic courses.

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1. The studies reviewed here are from several unpublished reports by the Board of Examiners, Michigan State College.

2. The term "third term students" is used in this study to apply to students taking the comprehensive examination after three full terms in a Basic College course.

3. The term "special permission Students" is used in this study to apply to students who accelerate from regular first or second term sections of a basic course upon permission of the department concerned to take the comprehensive examination.

TABLE I

PERCENTAGES OF STUDENTS IN EACH GRADE CLASSIFICATION ON THE COMPREHENSIVE EXAMINATIONS, SPRING 1948

Group of Students	Number	Grades					Credit-point ratio
		A	B	C	D	F	
Third term	8660	4.7	24.4	50.2	16.3	4.2	1.09
Special Permission	839	11.0	28.8	39.7	16.2	4.3	1.26
Total	9499	5.3	24.8	49.3	16.3	4.2	1.11

The percentage of special permission students receiving the grade A on the comprehensive examination is over twice as great as the percentage of third term students receiving that grade (6.3 per cent greater). The percentage of special permission students getting B is 4.4 per cent larger than the third term group. However, the percentage of special permission students receiving a C is 10.5 per cent smaller while the percentages getting D and F is about the same for both groups. Thus the students who are accelerating their general education program tend to do much better on the comprehensives than those who are not. No attempt is made here, of course, to equate students on the basis of ability.

Because this dissertation is primarily concerned with the Social Science course in the Basic College at Michigan State College we present the data in Table II on the Social Science comprehensive examination given at the end of the Spring term, 1948.

TABLE II

PERCENTAGES OF STUDENTS IN EACH GRADE CLASSIFICATION ON THE SOCIAL SCIENCE COMPREHENSIVE EXAMINATION, SPRING 1948

Group of Students	Number	Grades					Credit-point ratio
		A	B	C	D	F	
Third term	1630	5.2	24.1	48.5	15.5	6.7	1.06
Special Permission	122	23.0	22.1	40.1	12.3	2.5	1.51
Total	1701	6.5	24.5	48.8	15.0	4.6	1.13

Several differences are noted between the distributions of grades for the social science comprehensive (Table II) and the distribution for all comprehensives (Table I). The percentage of Social Science special permission students receiving the grade A is over twice as large as the general average shown in Table I; the number getting a B is 4.7 less; the C's in the two tables are about the same; while Social Science special permission students receiving D or F is substantially lower than the more inclusive special permission group. The reason for this difference may be that the Social Science department may be more selective than other departments in granting permission to take the comprehensive examination after one or two terms work, or it may be that more students come to college with a better background in social science than in other of the basic areas (with the exception of Written and Spoken English).

A criticism frequently made of the success of special permission students on the comprehensive examinations is that the higher grades

they receive are due almost entirely to high competence on those items in the examination pertaining to the terms of the courses actually taken. The belief is that such excellence gives them enough strength on the total examination score to carry them through with a high score even though they may show relative weakness on those items covered in terms not taken in class work.

The Board of Examiners of Michigan State College attempted to answer this question by an investigation of the items answered correctly by special permission students, separating these items as to subject matter for each term of each basic course. A comparison was then made of the percentage of items from each term's work which students having had only one or two terms in the course were able to answer. A sample of students with one, two, and three terms of each of the basic courses was used, with 200 in each sample, if that number was available. Table III gives the findings from the samples of those taking the Social Science comprehensive examination at the end of the winter term, 1947.

TABLE III

PERCENTAGE OF FIRST, SECOND, AND THIRD TERM ITEMS OF SOCIAL SCIENCE COMPREHENSIVE ANSWERED CORRECTLY BY STUDENTS DIVIDED ACCORDING TO GRADE AND PREPARATION. WINTER, 1947

Grade on Comp.	Term 1 Items (N=81) No. of terms in class			Term 2 Items (N=115) No. of terms in class			Term 3 Items (N=91) No. of terms in class		
	3	2	1	3	2	1	3	2	1
A	77	74	75	79	78	72	64	62	64
B	67	67	67	69	70	66	58	54	55
C	56	56	58	57	61	57	46	46	46
D	53	53	56	52	49	47	42	41	38
F	43	43	49	44	43	43	38	31	35

In studying Table III one should note that the accelerated or special permission students are those who have had one or two terms of class work in Social Science. The first term special permission students were selected on the basis of grades given by each instructor in their first term classes. On items in the comprehensive examination pertaining to first term work it should be expected that they would do as well, if not better, than those farther removed from that term. The table shows that A, B, and C students had about the same percentages of right answers to term 1 questions, and D and F students had slightly higher percentages. On term 2 items first term special permission students were slightly lower in the percentage of right responses for all grade groups except the C where they equalled the third term C students, and the F where they were the same as the second term students. On term 3 items there was no substantial difference between special permission and third term students in the three higher grade groupings. Among those receiving D and F the third term students seem to be better prepared.

The Board of Examiners, in similar studies on other basic courses offered at Michigan State College, found essentially the same pattern between the achievement of accelerated students and those having the full three terms work in each course. The Board generalizes from these studies that "the recurring statement that special permission students make their grades by performance on first term material cannot be justified from these data."[1] Thus, in comparing accomplishment on the

1. From an unpublished report on "Performance of special permission students" by the Board of Examiners, Michigan State College, p. 2.

comprehensive examinations of special permission students with those having three terms in the basic courses the following conclusions are drawn by the Board of Examiners.[1]

"1. In courses organized on the basis of a wide variation in training and ability of students, there will be found a considerable number of students for whom the course is repetitious and less profitable than a more advanced course. A course organized at a level challenging to these students would be too difficult for the majority. The situation as it exists is a natural and normal one and not particularly a cause for alarm.

"2. Presentation of material in a classroom is not highly correlated with the presence of that material in the student's mind. Many who were in the classroom do not absorb it and many who were not there already have absorbed it."

Another Michigan State College study was made by Ervin R. Van Der Jagt on the performance of Basic College Biological Science students in advance courses in biology.[2] The records of several hundred students was used. Groupings were made of students having Basic Biological Science and those who did not have the course. Those having the course were divided into accelerated and non-accelerated groups.[3] These groups were then subdivided into those having and not having Zoology 207 to

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1. Ibid.

2. Ervin R. Van Der Jagt, A Study of the Performance of Basic Biological Science Students in Advanced Biology Courses, Science Education, Vol. XXXIV (March 1950), pp. 85-93.

3. Procedure in acceleration is the same as in Basic Social Science. A first term student may accelerate if he has an A in the course; a second term student, if he had a B in first and second terms.

determine whether this prerequisite affected achievement in Zoology 208; and students having Botany 101 and those having Biological Science in its place, to determine how they progressed in Botany 202, an advanced course for which Botany 101 or 201 is normally a prerequisite. Pairing of students in the groups was done on the basis of deciles on the American Council of Education Psychological Test, course grades in Biological Science, and/or course grades in Botany or Zoology courses. Differences between the groups was determined by use of the "t" ratio to find whether significant differences (at the one per cent or five per cent level of significance) existed in the grade-point ratios of students in the different groups.

Van Der Jagt's summary of his findings is:[1]

"1. In general, students who accelerate in Biological Science received a higher grade-point average in Zoology 207 than those students taking all three terms in Basic Biological Science. The trend is continued in advanced Zoology.

"2. Successful acceleration of students via Basic Biological Science comprehensive examination is indicative of a factor of learning which continues to operate in advanced science courses.

"3. The acceleration factor is outside the realm of both general learning ability as measured by the American Council of Education Psychological Test and background knowledge in the subject as measured by the Basic Biological Science comprehensive examination used as a pre-test.

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1. Van Der Jagt, op. cit., p. 92.

"4. There appears to be a definite trend for students who entered the advanced course, Zoology 208, with only Basic Biological Science to do as well as students who had specific preparation for advanced Zoology by having completed Zoology 207.

"5. Students having both Basic Biological Science and Zoology 207 as a background for Zoology 208 rate a higher grade-point average than students having only one of these background experiences.

"6. Accelerated students who have had Basic Biological Science do not appreciably improve their chances for higher grades in Zoology 208 by first completing Zoology 207.

"7. Non-accelerated students materially increase their chances for higher grades in Zoology 208 by first completing Zoology 207.

"8. Students in the first four deciles on the ACE taking Zoology 208 were apparently benefitted by additional background experience (either Basic Biological Science or Zoology 207) to as large or as little an extent as were students in the top four deciles.

"9. Accelerated students with two terms of Basic Biological Science tend to do better in Zoology 208 than those who accelerate at the end of the term. The trend was not evident when the grades of accelerated students were computed for the first Zoology course (207) following the completion of Basic Biological Science.

"10. Significant differences in grade-point averages were found in favor of the accelerated over the non-accelerated Basic Biological Science students in Botany 202.

"11. Accelerated Basic Biological Science students having Botany 201 perform significantly better in Botany 202 than students having no Basic Biological Science but completing Botany 101 as a background prior to entrance into Botany 202.

"12. It makes no significant difference in performance in Botany 202 whether Basic Biological Science students enroll in Botany 101 or 201 as a background for advanced Botany study.

"13. Non-accelerated Basic Biological Science students perform no better than students who have not had Basic Biological Science in Botany 202."

Acceleration Through Special Classes or Programs

Least frequently used as methods of acceleration are the special classes for superior students who can benefit through concentrated, shorter courses and academic programs which make provision for independent study as a substitute for regular classes. Eckelberry, in his study of acceleration during the war, found that of 411 colleges replying to his questionnaire only 39 indicated that they were doing anything for the acceleration of students which involved shortening courses through condensing, combining, or reorganizing them.[1] Furthermore, it was not the war which stimulated such practice. The typical college curriculum has grown in the number of course offerings and change has occurred in course titles found in the college catalog but very little change has been made in the reconstruction of courses to more adequately

1. Eckelberry, op. cit., p. 177.

meet the needs of students of superior ability. A few experimental programs are noteworthy.

Experiment at the University of Minnesota. Brown reports an experiment at the University of Minnesota whereby certain students were privileged to take an elementary course in foods (home economics) which met three hours a week instead of the usual five formerly required of all students.[1] Both courses covered similar subject matter and used the same objective examinations. The course had been in operation for about five years when this report was made. Changes during that time had been made chiefly in the manner of selection of students. Experience had shown a pre-test to be the most valid measure of ability to carry the three credit course rather than the five, although intelligence rating and a C average on previous college work were also used as further qualifying factors. The records show that those taking the three credit course ranked consistently higher than those taking the five credit course. "From the evidence it would seem that students are not handicapped by taking the shorter course."

Ohio State Seminar in educational psychology. At the Ohio State University an "acceleration seminar"[2] has been tried for students with superior rating who were enrolled in a required course in educational psychology. Selection was made on the basis of the general ability test given upon college entrance, point-hour ratio, grade in the preceeding course in general psychology, and desire to accelerate as

1. Clara M. Brown, "An Experiment in Sectioning," Journal of Higher Education, I (May 1930), pp. 269-73.
2. Pressey, op. cit., pp. 128-130.

shown by a questionnaire followed by an interview. The seminar was a two hour session meeting once a week. Students were expected to make use of the time saved through enrollment in an additional course or other special work.

The instructor of the seminar gave less time to a detailed discussion of the readings than in the regular classes but required about 30 per cent more supplementary reading. Some laboratory projects were presented in demonstration. The instructor was more available for personal conferences. The same objective mid-terms and examinations were used as in other sections of the course.

The grades received by 86 students in three accoleration seminars showed high superiority over 801 students in twenty-seven regular sections. Of the former 28 per cent, 37 per cent, and 30 per cent received A, B, and C respectively; of the latter 10 per cent, 18 per cent, and 42 per cent were in these grade groups.

To make the comparisons more valid pairings were made of 81 seminar students with the same number from regular classes on the basis of sex, college, type of program, score on general ability test at college entrance, and academic record. The results of this study also show superiority of the accelerated group, as they recorded 26 per cent, 38 per cent, and 32 per cent in the A, B, C groupings, while those paired with them from the regular classes obtained 17 per cent, 32 per cent, and 41 per cent A's, B's, and C's. Pressey's comment on this difference is "that the seminars provided opportunities for independent work, incisive teaching, and challenging contacts with superior

students, better suited to such students than inclusion in a class where presumably much of the instruction was directed at the less able and the class moved at a slower pace."[1] Conferences, anecdotal records, and other evidence supported this statement.

Summary

In spite of the strength of tradition that a time-honored number of credits must be earned with a certain amount of required class attendance, American colleges and universities have conducted some experimentation and research on the acceleration of able students. The most frequently used methods are:

1. Acceleration by early college entrance. This probably is the oldest form of acceleration. Studies in recent years indicate that early beginning and completion of college programs tends to make for success in college and later life.

2. Acceleration by lengthening the school year, the most widely used method of shortening the span between college entrance and the degree, requires fewer administrative adjustments than any other method. Used almost universally during World War II, little research was carried on to test its effectiveness.

3. Acceleration by taking heavier course loads, next to summer school attendance, is the most frequently used means of hastening the time of graduation. Though studies on the results of such acceleration are few they show that students carrying heavier course loads do better

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1. Pressey, op. cit., pp. 129, 130.

scholastically than matched students with normal loads. Also, students themselves reported they had not been hindered in their social life, health, or leisure activities.

4. Acceleration by examination without class attendance. Less frequently used than the above methods, nevertheless, some of the best research has been conducted on this practice. The College of the University of Chicago, placing students along the way toward a degree by proficiency examinations in each general area finds that students, exempt from courses in which minimal competence is shown, do work in other courses which is superior to students taking the full program. At Michigan State College superior students may take the comprehensive examination in each of the seven basic areas after one or two terms in the course and receive full credit. Studies by the Board of Examiners show a higher percentage of accelerating students making A or B grades on the examination. Furthermore, these students do as well on terms of the course not taken as students having all three terms.

5. Acceleration through special classes or programs. Rarely found because of curricular reorganization involved, little research data are available. The reports however, indicate that members of such special classes consistently ranked higher than matched students in the regular courses.

Though a paucity of research is in evidence on existing acceleration policies there seems to be complete agreement on the desirability of such speed-up practices. The need for further experiment and research is, however, definitely indicated.

CHAPTER III

THE SOCIAL SCIENCE COURSE IN THE BASIC COLLEGE PROGRAM

An understanding of the nature of the Social Science course, the Basic College program of which it is a part, and the comprehensive examination system is essential in interpreting the data of this study on the achievement of students accelerating in such a course.

The Basic College

The Basic College was founded in 1944 as the administrative unit at Michigan State College which provides a general education for all students during their freshman and sophomore years in college. Seven general courses are offered with every student taking at least five of them. These courses make up only about half of the student's academic program. The remainder consists of introductory courses in his expected major or minors, in the electives chosen because of interest, for exploratory purposes, or for additional general education.

The objectives of general education at Michigan State have been stated by the late Dean of the Basic College, Howard C. Rather in an article in Higher Education.[1]

"The first objective of the Basic College program is to undergird the training of the specialist with a broad foundation in general education; in other words, to provide a common core of educational

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1. Howard C. Rather, General Education at a State College with Technological Traditions, Higher Education (publication of the U. S. Office of Education), Vol. III, No. 18, May 15, 1947.

experience that shall be shared by all students, regardless of their special interests.....

"The second objective..... is to give students an opportunity while enrolled in the Basic College to choose their field of special interest in the light of far more information about their own interests, aptitudes, and abilities than was formerly the case..... The basic courses, by nature, are somewhat exploratory. With these (plus counselling) the student eventually chooses his program in the light of far more information than he had when he formerly had to choose that program the first day he entered college...."

A third objective is to offer students who cannot complete a degree program, a meaningful college experience with the possibility of obtaining two year certificates for either general work or for two-year specialized curricula.

"The fourth objective.... is to recognize students as individuals, varying greatly in experience, education, interests, aptitudes, and competence..... The abilities of students with greater competence, experience, or will to do independent study, are recognized by comprehensive examinations (which)..... measure not merely factual information, but knowledge and understanding of principles, the ability to apply information, to think, to discriminate, to organize materials, and to render sound judgments....."

Every student must take five of the seven basic courses, or more, if his particular curriculum requires it. These courses are (1) Written and Spoken English, required of all, to aid every student in further

development of essential communication skills; (2) Biological Science, focused upon man as a biological organism and his position in the biological world; (3) Physical Science, a unified course to give general understanding of our world as contributed to by the sciences of astronomy, chemistry, geology, mathematics, and physics; (4) Social Science, as integrated presentation of the nature and origin of human social behavior and of the basic concepts necessary for understanding human social relations in its manifold aspects; (5) Effective Living, a course in personal adjustment to help each student orient himself to college environment, develop a satisfactory philosophy of life and think seriously of some important personal problems such as marriage and family relationships; (6) History of Civilization, to enrich the student's appreciation of our cultural background as an aid to a better understanding of the social, economic, political, religious, and intellectual character of our age; (7) Literature and Fine Arts, to help students develop better standards in appreciation in the arts of literature, music, architecture, sculpture, and painting.

The Social Science Course

The Social Science course thus represents but one of the Basic College fields. Sixty to seventy per cent of the students enrolling at Michigan State College take the course. A general social science offering was not a new departure with the inauguration of the Basic College for one had been given in the department of History and Political Science for about four years previous. The existing course was,

however, entirely reorganized to fit into the new general education program.

In building the social science offering several basic assumptions are in mind. These have been well stated by Walter R. Fee, head of the Social Science department since its start and responsible for its organization and development.[1]

"First, it is assumed that there is a body of knowledge which may properly be called social science. The present separate social sciences represent areas of subject matter which have developed through time in response to intellectual progress..... The recognition of social science as a legitimate and in our time vital study is merely to recognize the varied and interrelated data which may quite properly and often more adequately describe human relations..... The social scientist is concerned with all material relating to human relations.... Selection of aspects of human relations to be studies, must of course be made, but whatever the precise human relation, we believe it should be studied as a totality.

"Second, it is assumed that in building an introductory course in social science, it is entirely possible to consider a wider area without sacrificing quality of work. Breadth of treatment is not synonymous with superficiality of treatment. A distinction is made between a survey and an introduction.... no responsibility exists for attempting to

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1. Walter R. Fee, A General Education Course in Social Science at Michigan State College, Social Science in General Education, ed. by Earl J. McGrath (Dubuque, Iowa, Wm. C. Brown Company, 1948), pp. 114-116.

cover the surface of the social science field.... (rather) the student is introduced to complex subject matter at a limited number of important and strategic points. Significant and pertinent material from any discipline bearing on these points is carefully considered and related to a central question.

"Third, we have assumed that it is preferable to arrange the content of the course without regard to existing traditional subject-matter divisions among the social sciences.... it is conceived and taught as a social science possessing a unity in its own right."

The Social Science course is, therefore, based upon the fundamental tenet that the world of human social relationships is subject to investigation. It can be analyzed and interpreted in terms which will yield understanding useful to every person. Also fundamental is the belief that of all possible methods for developing adequate hypotheses concerning the interrelationships of people the scientific method is the most valid. All the data of the course are approached from this point of view. Furthermore, one of the over-all objectives of the course is to help the student develop the habit of critical and objective thinking in the realm of human relations. It seeks to help him overcome the practice of generalizing from inadequate data, shows him how to recognize his own biases and prejudices, and aids him in substituting scientific analysis for common sense impressions and stereotypes.

Underlying the whole structure of the course runs the concept of man as a biological organism, influenced by the necessities of existence

in a physical world but emerging as a social being through his interaction with other persons who themselves are largely products of their culture. Man's typical ways of behaving, his skills, his ideas, his institutions, and the intellectual and material products which he claims as his own are shown to be socially derived from the society of which he is a part. One essential purpose of the course, therefore, is to give the student a scientific understanding of his culture and his dependence upon it. It is also expected that the course will be distinctly a broadening influence for each student because of the insight it gives him into cultures other than his own.

These contributions which cultural anthropology and social psychology have made to the study of man and society provide the core around which cluster the various interpretations of modern social phenomena made throughout the course. To repeat, it is not a survey course giving a brief introduction to several of the traditional social science disciplines. Rather, it attempts to look at man as a whole, accepting the help which various specializations may give toward understanding the nature and problems of man in society but never isolating him as "Economic Man", "Political Man", or any other special kind of man.

The Social Science course is divided into nine units of work, three of which are considered each term. It is under gradual revision and never fully meets the satisfaction of the teaching staff, though the essential purposes and guiding principles have not been changed. The integrating factors described above are steadily becoming more prominent

as experience with the course increases. The following is a brief review of the chief concepts and objectives in each of the units.

1. Fundamentals of Social Science. This unit is, first of all, introductory to the course as a whole with special attention on the use of the scientific method in the study of social phenomena. Chief emphasis is then given to helping the student understand the interaction of biological, geographical, and cultural factors in the formation and development of human social behavior. The social derivation of human personality and the nature of social change are also stressed.

2. The Relationship Between Man and Government. The unit opens with an explanation of government as a social institution operating both as an agency of social control and for the purpose of providing services for the people. Differences in governmental systems, both in the democracies and in totalitarian forms are discussed, pointing out the relationship between economic organization and political structure. Attention is also given to the changing functions of government in modern society, some problems of popular control of government in the United States, and to the changing meanings of the concepts of freedom and liberty resulting from socio-cultural change.

3. The Character and Purposes of Contemporary Education. The social functions of education in any society are first examined, followed by a review of the development of formal education in our culture. Special concern is given to the relationship between educational opportunity and status in the social class structure with an examination of some of the problems arising out of such class differentials.

4. Organization for Production. This unit directs attention to the patterns of economic behavior which are characteristic of all societies and examines some significant varieties of economic systems. The bulk of the unit is given to an understanding of the nature and problems of modern capitalism. The consequences of large-scale business enterprise and monopolistic practices, the effects of the business cycle upon society as a whole and measures proposed to mitigate its consequences, the welfare of the consumer, the nature of cooperative enterprise - are some of the problems studied.

5. The Position of Labor. The changing status of the worker in relation to the prevailing social and economic situation is noted. The rise and development of labor organization, the process of collective bargaining, the bases of conflict between workers and management are reviewed. Recent labor legislation is analyzed with attention also upon plans which have resulted in labor-management harmony.

6. Agriculture in Transition. The economic, political, and social implications of the change from a predominantly agricultural economy to an industrial economy forms the introduction to this unit. Main emphasis is placed on a survey of the nature and suggested remedies of some of agriculture's critical problems, such as: The peculiarities of agricultural production and the place of government in the maintenance of prices; the interdependence of agriculture, industry and labor; the conservation of natural resources; the improvement of rural life.

7. Maintenance of the Family. This unit attempts to help the student develop an understanding of the family as a social institution and to see its relationship to other social institutions. The basic functions of the family and the variations in marriage and family forms in all societies are the topics first considered. Central emphasis is upon an understanding of the changes in the family resulting from a rapidly changing social order. The effects of economic, religious, educational, and personal value changes are discussed. Also included is a study of the factors causing family disorganization and some suggestions for stabilizing family life.

8. The Limitation of Intergroup Conflicts. Two topics form the major part of this unit: (1) rural-urban antagonisms in America, and (2) inter-racial and other minority conflicts. The foremost differences in rural-urban life as seen both in their social and cultural aspects and in their political and economic implications are reviewed and followed with some proposed solutions for reducing the resulting antagonisms. The nature of racial and other minority groups is examined and the student is again brought to recognize the scientific concepts of race and nationality and the causes of prejudicial attitudes toward minority groups. Special emphasis is placed upon the development of an understanding of the peculiar status and consequent problems of the American negro with suggestions for constructive action.

9. Maintenance of International Peace. The main objective of this unit is to help the student better understand the nature of a world of sovereign nations, the nature and causes of tensions between nation-states,

and some of the attempts which have been made to maintain and promote a peaceful world. The economic forces underlying international relations, the resurgence of nationalism and imperialism, the conflicts between various cultures are all stressed. Attention is placed on organized efforts which have been made to establish world peace with emphasis upon the development and functioning of the United Nations. Recognition is given to the problems faced by the United Nations in the contemporary world, its inadequacies and its areas of achievement. An analysis is made of the institutionalization of war in modern society and the possibilities for change in such institutional patterns.

The Comprehensive Examination

To obtain the nine credits in Social Science or in any of the other basic courses the student must pass a comprehensive examination. This is normally taken after successfully passing each of the three terms work in a course but is frequently given to capable students after one or two terms in the course upon recommendation of the department concerned.

The comprehensive examinations are prepared by a Board of Examiners which is administratively separate from the Basic College. Contact with basic courses is maintained by having the examiner for each course teach one section of the course, participate in departmental meetings, and through the review of his examination by a committee of the staff concerned. The comprehensive examination for each basic course is given at the end of each term.

The reason for separating the teaching from the testing function (for the course grade only) is that test construction is a highly specialized task, consuming considerable time which the teacher can spend to better advantage on his teaching tasks. It also provides a uniformity of standards in a system where twenty or more teachers are teaching eighty or more sections of the course. "Teachers vary so greatly in their backgrounds, training, and interests that, unless some single standard is used to measure all students, grades and credits lose much of their meaning."[1]

The major purposes of the comprehensive examination program are well stated by Paul L. Dressel, Chairman of the Board of Examiners, Michigan State College. They are:[2]

1. To recognize individual differences in students and to allow them to progress at varying rates in accordance with these differences.

2. To encourage the retention and integration of knowledge accumulated over a period of three terms.

3. To place emphasis on objective evidence of achievement rather than on completion of a stereotyped sequence of activities.

4. To improve the relationship of student and instructor by relieving the instructor of the necessity of passing judgment on achievement for which he is partly responsible.

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1. The Comprehensive Examination System at Michigan State College, A Handbook for Students, prepared by the Board of Examiners, (September, 1949), p. 6.

2. Paul L. Dressel, The Comprehensive Examination Program, Chapter II in The Board of Examiners, Michigan State College, Comprehensive Examinations in a Program of General Education, Michigan State College Press, East Lansing, 1949, p. 8.

5. To replace the varying and occasionally highly subjective judgments of many instructors by one uniform system of grading all students seeking credit in a course.

6. To improve the quality of examinations by assigning the task of constructing examinations to interested and qualified individuals who are given adequate time for the job.

The Social Science comprehensive examination is divided into two parts of 150 items each. The student is entitled to take two hours for the completion of each part. The examination is objective in type with answers marked on a separate sheet for machine scoring. The individual's score is the sum of the scores on both parts.

Part I of the examination is primarily designed "to measure the student's knowledge and understanding of the facts and principles which are taught in the course."[1] Part II is "generally designed to test whether or not the student can recognize the facts and principles of the course in a different context and whether or not he can apply what he has learned. This second part makes greater use of illustrations, charts, reading passages, and other materials suitable for interpretation, than does the first part."[2]

The comprehensive examination is designed to test the knowledge of students completing the full three terms of a course. Letter grades are assigned to score ranges on the basis of the achievement of students

1. The Comprehensive Examination System at Michigan State College, A Handbook for Students, prepared by the Board of Examiners, September, 1949, p. 9.
2. Ibid., p. 9.

who take the year's work. The scores of students who are accelerating after one or two terms in the course are then fitted into the distribution already established.

The policy on acceleration varies from department to department in the Basic College. As a rule "special permission" to take the comprehensive is based upon grade achieved in the course. Grades during each term are instructor granted though departmental term-end examinations are the rule. Such grades are temporary in nature and are used primarily for student guidance. Students failing a term's work must repeat before proceeding to the next term, or if it is the third term it must be repeated before taking the comprehensive. Students showing superior ability may be given permission to take the comprehensive before taking the third term.

The procedure used in the Social Science department is typical. A student in the first term may make application if he has received an A at mid-term; in the second term if he has on record a B for the first term and a similar grade at the middle of the second term. An all-college average of at least 1.5 is also required as is the recommendation of the instructor and the approval of the head of the department.

Summary

The Social Science course forming the basis of this study is one of seven general education courses in the Basic College of Michigan State College. The purpose is to help the student toward an understanding of the world of human social relationships. The course is

not a survey of the several social science disciplines but an integrated analysis of some of the most important problems facing mankind.

The student obtains credit for the course only after passing a comprehensive examination, normally taken after three terms in the course. Provision is made, however, whereby students doing A work during their first term of Social Science or an average of B in their second term may receive special permission to take the comprehensive before completing the full three terms in the course.

CHAPTER IV

AN EXPERIMENT IN THE ACCELERATION OF SOCIAL SCIENCE STUDENTS

Fundamental to this study is an experiment in acceleration in which a class of selected students is given the three term Basic College course in Social Science in one term. The purpose of this experiment is to provide data to test the hypothesis: Students (selected by a social science pre-test) who participate in a one-term special class so increase their knowledge and understanding of social science that they attain significantly higher levels of achievement on the items of the comprehensive examination pertaining to the nine units of the course than each of the following groups.

(a) Students in their first year in college accelerated on the basis of grades obtained in the first term of the Social Science course.

(b) Students in their second year in college accelerated on the basis of grades obtained in the first term of the Social Science course.

(c) Students with a varying time in college accelerated by grades obtained in the first and second terms of Social Science.

(d) Students having all three terms of Social Science whose scores on the comprehensive examination are in the same range as those of the one-term special class.

The testing of the above hypothesis is presented in Chapter V.

This chapter sets forth the nature of the experimental class, the manner of selection, the procedure used in the class. It examines the data obtained on the operation of the class and includes an evaluation of the class by the students. It also analyzes the gains made by the students during the term for the purpose of testing the hypothesis: Gains on units of the Social Science course made by students of the one-term experimental class are greatest in those areas not specifically covered by high school work.

The Selection of Students

Students were chosen for participation in the special class for acceleration in Social Science by means of a pre-test given by the Board of Examiners to entering freshmen in the Fall term, 1948. During Orientation Week all freshmen were given a pre-test in one of the Basic College courses. Former comprehensive examinations were used for this purpose. The examinations were randomized so it was purely by chance that any student received a particular examination. A total of 394 freshmen took the Social Science test. Table IV gives the distribution of scores received compared with scores and grades given in the Winter term, 1948 when the same comprehensive examination was administered for credit purposes.

The median score when the comprehensive was given in the Winter term, 1948 was 170 with a high of 232 and a low of 101. When given as a pre-test the median was 115 with a high of 201 and a low of 52.

TABLE IV

RANGES OF SCORES AND GRADES ON EXAMINATION USED AS A COMPREHENSIVE AND AS A PRE-TEST

Grade	Range of Scores	Comprehensive, Winter 1948		Pre-test, Fall 1948	
		Number of Students	Per cent	Number of Students	Per cent
A	211-232	61	8.1		
B	182-210	260	34.6	3	0.7
C	151-181	298	40.0	35	8.9
D	130-150	96	12.8	73	18.5
F	101-129	35	4.6		
	52-129*			283	71.8
	Total	750	100.1	394	99.9

* The range of scores for the F's is much greater for the pre-test than for the comprehensive.

The thirty students receiving the highest scores were immediately notified by letter informing them of the opportunity to accelerate in Social Science. The letter read, in part:

> The score you received on the Social Science Comprehensive pre-test on Tuesday ranks you among the top eight per cent of those taking the test.
>
> If you plan to take Social Science this fall, your rating on this test will entitle you to register for a special section in which the whole year's work of Social Science will be covered in one quarter. You will then be permitted to take the Social Science Comprehensive examination at the end of the Fall quarter.

Each student was asked to have an interview with the instructor before registering for the course. All thirty came, each expressing surprise at his ranking on the pre-test and stating his interest in availing himself of the opportunity offered. The instructor explained the nature of the course and the heavy study load involved in doing three term's

work in one. Only two decided against the course so a class of 28 students resulted. Pre-test grades of those registering for the special class were: 1 B, 25 C, 2 D.

Procedure in the Class

It was not the purpose of the class to develop or experiment with any new learning devices although several adaptations of previously used methods did seem to prove effective. The class was organized primarily to direct the student in his own study of the field covered by Basic College Social Science. Class sessions did not furnish time to cover all topics either by lecture or discussion which normally would be considered in a three term course. The general nature of the class was such as to furnish guidance and incentive to a select group of students that they might adequately meet the objectives of the course, largely through their own efforts. As already noted, this study seeks to compare the achievement of these students after such an experience with those students coming from regular Social Science classes, whether accelerated or not.

Class sessions. The term in which the experimental class was offered consisted of 31 fifty minute periods. The time alloted to each of the nine units of the course is noted in Table V.

TABLE V

DISTRIBUTION OF TIME ON UNITS OF THE COURSE

Unit Number	Title of Unit	Number of Class Sessions
1	Fundamentals of Social Science	10
2	Relationship Between Man and Government	4
3	Character and Purposes of Contemp. Education	
4	Organization for Production	5
5	The Position of Labor	2½
6	Agriculture in Transition	1½
7	Maintenance of the Family	2
8	Intergroup Conflicts	2
9	Maintenance of International Peace	2
	Post-test (to measure student gains)	1
	Total	31

The preponderance of time spent on the first unit was due to the necessity of orienting the students to the nature of the course, and in developing a clear understanding of the essential concepts of social behavior used throughout the course. These concepts are rarely developed in high school. About one class period during this unit was spent in an attempt to get the students to analyze the reasons for their high scores on the pre-test.

The last session of the course was used for the completion of a post-test. The same 500 item comprehensive examination given as a

pre-test was also administered as a post-test. It is the basis used for determining student gains during the course. Two to three hours were spent by the students outside of class time on this test besides the final class meeting. Time was also taken from other class periods for other questionnaires such as the "Teacher Evaluation Sheet" and the "Student Opinionnaire". Such were the demands of an experimental class that whatever gains in motivation students may have had were probably offset by time wasted (from the student viewpoint) on evaluation procedures in which the instructor is interested.

Teaching method. The instructor, in the main, followed the teaching method normally used in his regular Social Science classes. It probably would be classified as a combination of lecture and discussion. Modifications were made chiefly because of the special nature of the experimental class in which much material had to be covered in a relatively short time.

The instructor found the class both highly gratifying and quite disturbing. It was a pleasure to teach a class in which discussion was constantly alive and meaningful. An average of eleven students participated in class discussion each period, with a maximum as high as twenty and a minimum of two (near the end of the course when time was short and lecturing was the rule). Questions were freely raised and controversial points of view expressed by the students, making for interesting and stimulating class discussions. But it was also disquieting to have a class in which severe time limitations prevented a thorough coverage of the most challenging topics of the course. Here

was an exceptional group of students, wide awake, eager to learn, who had to be held down in class discussion in order to progress through the course.

Variations in class procedure were made only to meet the exigencies of an accelerated course and not particularly to experiment with new teaching methods. The instructor attempted to keep open lines of communication with his students that he might receive their evaluation of the course as the term proceeded. He kept a diary in which entries were made succeeding each class period. This record reveals an excellent response on the part of the students. A majority was anxious to learn and the students were not hesitant in asking for help and offering suggestions on the conduct of the class. For example, the entry on October 30th states, "At the suggestion of several students I spent less time in class discussion and more on lecture. With only two class periods on 'Government' only the most important questions could be discussed." Some other entries which are quite typical are:

> "September 29.. The question 'What is Social Science' was given to the class for discussion. Over half the students had their hands up and a lively discussion followed. One of the students raised the question as to whether it could properly be called a science. The rest of the discussion centered around the nature of a science and some of the ways by which the scientific method could be applied to the study of human relations. I used this experimental class as an example."

> "October 22.. Discussion centered around the nature of political democracy. ------asked a question concerning the character of 'pure democracy' and its relation to what we have in this country. Socialist, communist, and fascist philosophies of government were also covered briefly. It is too bad we don't have more time to discuss these questions. The students are alert and would profit much from a more thorough discussion."

"October 25... I wrote on the board four possible topics around which discussion for the day might be shaped (kinds of law, court systems, nature of liberty, voting). Students were asked if they had any other problems on government they would rather discuss. They didn't and all wanted me to go down the line--which I did--only covering, however, the first two topics. Many questions were asked as we went along (on common law and how it changes, international law, the way the Supreme Court hears cases, etc.). The time went too rapidly."

"November 8... Gave a nine item quiz on price, cooperation, and several economic problems. All students did remarkably well. Few topics needed elaboration in class. The question was raised on the meaning of 'national income' and 'gross national product' so these were explained. Someone also asked whether or not the figures for personal income distribution given in the text were not out of date. I put on the board data from the President's 1948 Economic Report in answer to that question. The class was asked what other problems they desired to discuss and for a show of hands to determine whether a sufficient number were interested. Discussion on the following topics was desired: Fabian, Utopian, and Marxian Socialism; Business Cycles. Only the first two were covered. We are one day behind schedule already. It seems very difficult to close off discussion and move on to another topic. These students are so very eager to enter into discussion on almost any topic."

"November 15... Gave a brief test on collective bargaining and spent the period discussing those areas which showed the greatest need. Most of the time was spent on the nature and content of a collective bargaining agreement."

"November 22... Gave an eight question true-false test on the family. Used the results as a basis for choosing areas needing discussion. Stressed the basic functions of the family and forms of marriage. Student participation was good. Many questions were asked and suggestions given."

The last three entries quoted above reveal a technique which was used with success during the last half of the course. This consisted of a short quiz (usually five to ten true-false statements) at the beginning of each class period. These tests not only had the usual beneficial effect of stimulating better preparation but also gave the instructor good guidance in the selection of topics for the day's discussion. At the end of each quiz the items were briefly explained.

The students graded their own papers, giving a show of hands of those who had each item right. The areas emphasized in each class period were those where students gave evidence of the greatest need. This procedure proved to be an effective means of conserving time and making available class time more productive.

Class attendance. Students were not required to attend the class. They were informed at the beginning of the course that class sessions were for the purpose of giving them guidance in their own preparation of the work of the course. They were entirely on their own and could come or not as they felt the need. The average number of absences from the class was 2.8. Table VI gives the attendance and absence of varying numbers of students from classes during the term.

TABLE VI

EXPERIMENTAL CLASS ATTENDANCE AND ABSENCES

No. of Students	No. of classes attended	No. of absences
6	31	0
7	30	1
3	29	2
5	28	3
1	27	4
1	26	5
1	25	6
1	24	7
1	23	8
1	22	10
1	20	11

The "clinic" sessions. The greatest departure from usual course procedure was probably found in the extra-class sessions which came

to be known as the "clinic". The purpose of the clinic was to provide a time when students could come individually or in groups for an interview with the instructor, further discussion on points not finished or made clear in class, or to take tests. Because of conflicting schedules it was necessary to find two periods a week so each student could come at least once. Tuesday from 1:00 to 2:00 P.M. (when 21 could come) and Wednesday from 8:00 to 9:00 A.M. (when 23 could come) were arranged.

Attendance at the clinic sessions was not large but student reaction from those who did attend was good. Table VII shows the number of times varying numbers of students attended.

TABLE VII

ATTENDANCE AT CLINIC SESSIONS

No. of Students	"Clinics" Attended
6	0
3	1
1	2
3	2
6	4
1	5
1	6
2	7
1	8
1	10

The average attendance was 4.3 students with attendance running between one and eleven per session.

Those who did come to the clinic wanted to use their time chiefly in taking unit and term-end social science tests. Grades were not

necessary as all students were to take the comprehensive and be graded thereby. Furthermore, it was thought that time could not be spared in taking examinations during the regular class period. Nevertheless, the students had the opportunity in the clinic sessions of checking their own progress through taking any test they desired when they thought they were ready. The tests were, therefore, diagnostic aids to help students discover their weak spots so as to give greater attention to areas where they made the poorest showing. The instructor scored each test immediately after the student had finished. Each student was quite interested in relating his score on a test to the grade given for a comparable score when the test was used in a regular class. It was a common sight to see students then taking notes concerning questions missed that they may either inquire about them from the instructor or return to the readings for further clarification. This was the first time in the experience of the instructor when he witnessed students actually enjoying examinations. The reason undoubtedly was that these tests were considered to be learning aids and not wearisome chores demanded by a grading system. Although many students did not attend the clinic sessions some remarked afterward that they wished they had. A review of student evaluation of these sessions is made below.[1]

While the clinics were used primarily for test taking there were several occasions when students brought problems from their reading

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1. Infra., pp. 102, 103.

or from class discussion and desired additional explanation by the instructor. A diary was also kept of these sessions and the instructor's entries show discussions on index numbers, federalism, due process of law, price determination, etc.

It was not the students who alone benefited from the clinic. The instructor found it a good source for his evaluation of the course. Those who attended talked freely on their attitudes toward the course and the way we were proceeding. For example, some thought the instructor spent too much class time answering the questions of one or two students when the majority were not interested in hearing a discussion of such questions. The instructor attempted to profit by this and other suggestions on the conduct of the class. The use of short quizzes at the beginning of each period grew out of student suggestions in the clinic session.

The Achievement of the Students

The chief test of student achievement in the Basic College is, of course, the comprehensive examination. This is given to all students completing three terms of work in each basic area and to those who take it by special permission after one or two terms in the area. All students from the experimental class took the Social Science comprehensive examination upon completion of the one-term course. The results are shown in Column 3 of Table VIII. No grades were given as a result of tests for that purpose during the term but as administrative policy required grading by the instructor he formulated their grades

on the basis of his subjective knowledge of the students plus their accomplishment on such tests as were given for diagnostic purposes. These grades are given in Column 1 of Table VIII. Also, a post-test was given which consisted of the same comprehensive examination used by the Board of Examiners as a pre-test and from which the students of the experimental class were selected. The purpose was to measure student growth during the term. A detailed account is given below.[1] However, column 2 in Table VIII also gives letter grades on this post-test based on the distribution of grades given by the Board of Examiners when the test was used as the comprehensive examination in Social Science at the end of the winter term, 1948.

TABLE VIII

STUDENT'S GRADES IN THE EXPERIMENTAL CLASS

Grade	Number of Students Assigned Grades		
	By Instructor (1)	On Post-test (2)	By Comprehensive (3)
A	8	4	12
B	16	19	14
C	4	5	2

The question may arise as to why wide variances appear in possible and real term end grades assigned these students of the experimental class. In regard to the grades given by the instructor it may be repeated that they were his conservative subjective opinion of the growth

1. Infra., pp. 83-99.

made by the students during the term. In the light of achievement made on the comprehensive he guessed somewhat low.

Concerning the differences between the post-test (which was a former comprehensive) and the Fall 1948 Comprehensive this may be said: the members of the class had five additional days to study from the last day in class (December 8th) to the day of the comprehensive examination (December 13th). Many of them were quite perturbed that they had done no better on the post-test and later reported considerable studying for the comprehensive.[1] It may also be noted that the scores of many "B" students on the post-test were quite close to the beginning of the "A" scores. Perhaps the five days of studying resulted in the necessary rise to get them over the line. Had eight "B" students raised their scores an average of 8 points they would become "A" students. It was not at all unlikely that the extra push at the end was enough to bring them up into the next letter classification.

Attention is given in the next chapter to a comparison of this experimental class with the achievement of several other groups of students taking the same comprehensive examination at the end of the fall term, 1948.

Comparison of Pre-test; Post-test Scores

Table IX presents an indication of student achievement in the experimental class as shown by an analysis of scores received in the

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1. Infra., pp. 106, 110.

pre-test and the post-test. The students of the class cooperated well with the instructor in again taking the same comprehensive examination they took as a pre-test at the beginning of the term. Since three to four hours were required to administer the test it could not all be done during regular class time. The students began the test in one of the clinic sessions, continued it during scheduled free periods, and finished it the last class meeting. Thus, the post-test was administered under rather unfavorable circumstances and without the benefit of review and the last minute catching up on assignments which is the usual test preparation procedure.

The tests were scored immediately by the instructor so each student could determine how much of a gain he had made during the course. Many students used the remaining time at the end of the period to check errors and discover areas where further study was necessary. Most of them were rather disturbed at their low gains, undoubtedly a contributing factor to greater effort before the comprehensive examination.

Table IX, Column 16 gives the average gain for the whole class from pre-test to post-test as 31.2 points or an increase of 10.4 per cent. The distribution of gains among various students in the class is presented in Table X where gains are classified by ranges of points. The student making the largest gain increased his score by 58 points. One student made no gain.

GAINS MADE BY STUDENTS IN THE EXPERIMENTAL CLASS AS SHOWN BY DIFFERENCES IN SCORES BETWEEN PRE-TEST AND POST-TEST

	Part I						Part II						Parts I & II					
Unit number in course*	Number of Items (1)	Mean Pre-test Score (2)	Mean Post-test Score (3)	Mean Gain (4)	Percent Gain (5)	Unit Rank in Gains (6)	Number of Items (7)	Mean Pre-test Score (8)	Mean Post-test Score (9)	Mean Gain (10)	Percent Gain (11)	Unit Rank in Gains (12)	Number of Items (13)	Mean Pre-test Score (14)	Mean Post-test Score (15)	Mean Gain (16)	Percent Gain (17)	Unit Rank in Gains (18)
1	19	7.6	11.2	3.6	19.0	1	19	10.2	12.4	2.2	11.6	2	38	17.8	23.6	5.8	15.3	1
2	32	20.2	23.3	3.1	9.7	8	28	18.2	20.1	1.9	6.9	6	60	38.4	43.5	5.1	8.5	7
3	6	2.6	3.5	.9	14.8	4	16	10.1	12.1	2.0	12.1	1	22	12.7	15.5	2.8	12.8	3
4	25	15.1	17.4	2.3	9.2	9	30	15.2	17.1	1.9	6.3	8	55	30.3	34.5	4.2	7.6	9
5	16	8.8	10.7	1.9	11.8	5	5	3.1	3.4	.3	5.8	9	21	11.9	14.1	2.2	10.4	5
6	3	1.6	2.1	.5	19.0	1	5	2.2	2.7	.5	10.8	3	8	3.8	4.9	1.1	13.9	2
7	15	5.3	8.1	2.8	19.0	1	24	14.1	16.1	2.0	8.5	5	39	19.4	24.3	4.9	12.5	4
8	19	9.8	11.9	2.1	10.7	6	9	5.1	5.9	.8	8.8	4	28	15.0	17.8	2.8	10.1	6
9	15	7.5	8.9	1.4	9.5	7	14	7.4	8.3	.9	6.6	7	29	14.9	17.3	2.4	8.3	8
Total	150	78.5	97.2	18.7	12.5		150	85.6	98.1	12.5	8.4		300	164.1	195.4	31.2	10.4	

* Numbers refer to the following units of the course: (1) Fundamentals of Social Science, (2) Relationship Between Man and Government; (3) Character and Purposes of Contemporary Education; (4) Organization for Production, (5) The Position of Labor; (6) Agriculture in Transition; (7) Maintenance of the Family; (8) Limitation of Intergroup Conflicts; (9) Maintenance of International Peace.

TABLE X

PRE-TEST, POST-TEST GAINS WITHIN CERTAIN RANGES FOR THE EXPERIMENTAL CLASS

Range of Gains	No. of Students	Mean Gain	Per cent Gain
59-50	5	54.0	18.0
49-40	2	46.0	15.3
39-30	10	32.3	10.6
29-20	7	22.9	7.6
19-10	3	13.3	4.4
9-0	1	0.0	0.0

Does a gain of 10.4 per cent for the whole class show an adequate increase in the competence of students in the experimental class? Apparently no research is available giving any indication of the gains that might be expected of a superior group of students in any course. A comparison may justifiably be made, however, with the findings of a study on gains in Basic College Social Science made by the Board of Examiners, Michigan State College.[1] This study consists of two groups of freshmen students: a control group which did not take Basic Social Science, and an experimental group which did. All incoming freshmen in the Fall, 1947 were given a pre-test which included items from all the basic areas. Fifty items to test knowledge of the "content objectives" of Basic Social Science were included in the pre-test. The same items were repeated in the Social Science comprehensive examination in the Spring, 1948. From those students taking the comprehensive

1. A Report on Several Problems Related to the Basic College Comprehensive Examinations, an unpublished study made by the Board of Examiners, Michigan State College, East Lansing. 1948. pp. 1-6.

who had three terms of Social Science an experimental group of 100 was selected, representing the full range of achievement as measured by the comprehensive examination. The same items were also included in a test given to 100 students who did not take Social Science, and were known as the control group. The purpose of the study was to furnish an indication of gains made in the material of the Social Science course by students not enrolled in the course so as to compare them with those having the course.

The findings of this Board of Examiners study are reconstructed in Table XI for purposes of comparison with the one-term experimental class. A gain of 23.3 per cent (column 11) was made by students taking three terms of Social Science. A gain of 9.7 per cent was made by students who did not take Social Science but were in college for three terms. Thus, the students in the Board of Examiners' study who had not taken Social Science made almost as much of a gain as the students from the experimental class, 10.4 per cent (Table XI, Column 11). And students who had all three terms made over twice as much a percentage gain (23.3 per cent) as those who had the one term accelerated class. The question naturally arises as to the reason for this wide variance in gains.

An explanation of this difference is difficult due to the number of unknown variables probably involved. However, a few observations can be made.

1. The achievement of students on the post-test is not indicative of the total gains made by students in the one-term course. As already

TABLE XI

COMPARATIVE ACHIEVEMENT IN SOCIAL SCIENCE, PRE-TEST TO POST-TEST OF THREE GROUPS OF STUDENTS

Groups Studied	Percentage of Right Responses								Per cent gained pre-test to post-test		
	Pre-test				Post-test						
	Part I	Part II	Diff. I&II	Total	Part I	Part II	Diff. I&II	Total	Part I	Part II	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Bd. of Exam. Control Group	28.0	41.3	13.3	33.3	38.6	49.5	10.9	43.0	10.6	8.2	9.7
Bd. of Exam. Exper. Group	31.4	41.8	10.4	35.6	57.6	60.7	3.1	58.9	26.2	18.9	23.3
Experimental Class	52.3	57.0	4.7	54.7	64.8	65.4	0.6	65.1	12.5	8.4	10.4

noted, the examination was given under conditions not conducive to maximum achievement. No review or pre-exam catching up on reading was done as was undoubtedly the case with the Board of Examiners control group. This is substantiated by the fact that after five days of review and preparation the grades received on the comprehensive examination showed a marked improvement over those received on the pre-test.[1]

2. The experimental class did about 20 per cent better on the pre-test than the Board of Examiners' groups (Table XI, column 4).

3. The Board of Examiners' experimental group (three terms of Social Science) had 58.9 per cent right responses on the post-test (column 8). The experimental class had 54.7 per cent right responses on the pre-test (column 4). Thus, those who had Social Science for three terms at Michigan State showed a level of achievement only 4.2 per cent better than the students of the experimental class before they had the course.

4. The Board of Examiners' experimental group is a representative sample attempting to cover the full range of achievement as measured by the comprehensive examination. It therefore includes students of a wider range of ability and background than does the experimental class. It may possibly be expected that the former would make a greater gain than the latter. However, the Board of Examiners' study breaks down the experimental group gains into sub-groups according to grade received on the comprehensive examination. The gains made by grade categories are: A 30 per cent, B 29 per cent, C 23 per cent, D 18 per cent, F 10 per cent, with an average of 23.3 per cent.[2] Thus, in the

1. See Table VIII, p. 42
2. Ibid., p. 5.

Board's study the students receiving the highest grades made the largest gains. Why, then, did not the experimental class make a greater gain?

5. It is interesting to speculate on the possible comprehensive scores received by students of the experimental class had they made gains as high as those of the Board's experimental group. The average score on the pre-test was 164.1 or 54.7 per cent of the items (Table XI, Column 4). If a gain of 23.3 per cent were made in items answered correctly the average score on the post-test would have been 234 as against the 195.4 actually made. If a gain of 30 per cent (as made by "A" students in the Board's study) was made the average score would be 254. It should be noted then, that the 234 is two points higher and the 254 twenty-two points higher than the highest score (232) made when the test was given as the comprehensive in the Winter, 1948. It is also three points and twenty-three points higher respectively than the highest score made on the post-test in the experimental class. Can the average of students of even the highest ability be expected to rank as high?

The evidence seems to point to maximum limits of knowledge and understanding on the part of freshmen students. Those who enter college with a higher level of knowledge and understanding than their fellows cannot be expected to make as large a gain as those with less background. The greater the competence in Social Science upon college entrance the smaller the growth resulting from participation in the Basic College Social Science course. At least, from the data here

presented, this seems to be a tenable hypothesis. Further studies are needed to substantiate it and discover its implications.

Every Social Science comprehensive examination is divided into two parts of 150 items each. Part I is intended to be primarily factual, to test the students' knowledge of concepts, facts and materials found in the course. Part II consists of items the purpose of which is to test understanding, critical thinking, and the ability to interpret and apply the concepts and facts of social science.

All studies thus far made show that students make a smaller percentage gain on Part II of the Social Science comprehensive than they do on Part I. The acquisition of terms, concepts, data, proceeds at a faster rate than does the facility of using and applying such terms, concepts, and data. This is true even of students who do not take the Social Science course, as is shown in Table XI, columns 9 and 10, where a gain of 10.6 per cent was made on Part I but only 8.2 per cent on Part II. The Board of Examiners' experimental group gained 26.2 per cent on Part I and 18.9 per cent on Part II, while the experimental class dropped from 12.5 per cent on Part I to 8.4 per cent on Part II. The same phenomena is tabulated in another manner in columns 3 and 7 of Table XI where the differences between Part I and Part II scores on the pre-test have narrowed considerably in the differences manifested on the post-test.

Any explanation of these phenomena is difficult because of the unknown variables involved. Possibly reading ability enters more heavily into successful responses on Part II items where different

types of questions are used than in Part I, e.g., reading passages which require interpretation of a selected passage. Perhaps, also, the course does not give sufficient practice in critical thinking, the application of principles, formation of judgments, etc. To meet these objectives of the course more thoroughly may require more definite attention to these goals than is now given.

Analysis of Pre-test, Post-test, by Units of the Course

The purpose of this section is to test the third hypothesis: Gains on units of the Social Science course made by students of the one-term special class are greatest in those areas not specifically covered by high school work.

The Social Science course is divided into nine units, not all of which bear an equal weight in the course although three are covered each term. The distribution of time on these units in the experimental class is noted in Table V. An attempt is here made to evaluate relative achievement on the various units as shown by the growth from pre-test to post-test on the comprehensive items concerned with each unit.

The procedure used is as follows: (1) Each item in the comprehensive examination (used as the pre-test, post-test) is allocated to one of the nine units of the course. (2) A scoring key is made for the items pertaining to each unit and for each part of the comprehensive (18 keys in all). (3) A score is obtained on each answer sheet (counting by hand) for each unit of the course and for Part I and Part II of the comprehensive separately. (4) The mean score of the

class is found for the items pertaining to each unit in both the pre-test and the post-test. (5) The mean gains between pre-test and post-test for Parts I and II are obtained and the percentage of such gain to the total number of items pertaining to each unit is calculated. (6) The units are ranked according to gains made. (7) Procedures in (4), (5), (6) are repeated for the combined scores of Parts I and II on the total examination, and for both the pre-test and the post-test. The results are given in Table IX, page 85.

The following is a summary of the ranking of gains on units of the course as shown on the total test. Variations between Part I and Part II are indicated. A few explanations are postulated.

1. The greatest total gain was made on the first unit of the course, "Fundamentals of Social Science". This unit also ranked first on Part I but second on Part II. Thirty-eight items belonging to this unit were included in the test, covering such topics as the use of the scientific method in the study of human relationships, the connection between human biological characteristics, physical environment and the behavior of men, the nature and development of culture, and the processes of cultural change. As noted in Table V nearly one-third of the allotted time of the course was spent on this unit. The instructor's reason was that the concepts developed in this unit are fundamental to the whole course and the nature of the subject matter makes it quite unlike anything studied in high school or obtained elsewhere in the students' background.

2. The unit on "Agriculture in Transition" ranked second on the total test though it ranked first on Part I and third on Part II.

There were only eight items in the test on the unit so the results may not be too reliable. Nevertheless, the students found the material in the unit rather new to them. Test items dealt with such questions as the causes of the shift from subsistence to commercial farming, the effect of technology on rural life, the decline in the foreign grain market after World War I, and the effects of the depression upon agriculture.

3. "The Character and Purposes of Contemporary Education" ranked third, having obtained first rank on Part II (on which there are 16 items) and fourth on Part I (with only 6 items). Here also is an area in which students have little background though they have been going to school most of their lives. The following topics are embodied in the items: the chief functions of education in society, gaps between curricula and the progressive definition of the objectives of education, trends toward "core" courses, area differences in per capita expenditures for education, enrollment changes in American history, and a reading passage on "Means of Mass Impression" dealing with the importance of newspapers, motion pictures, the radio, etc., as agencies of social control.

4. Ranking fourth in total gains is the unit on "Maintenance of the Family". This unit ranked first, however, on Part I (two others tied for first place) but came in fifth on Part II. Each part has 15 and 24 units respectively on "the family". The rather wide difference in rank between the two parts of the test can probably be accounted for by the nature of the two parts. For example, Part II includes eight

items asking for an interpretation of a table on "Grounds for Granting Divorces in the United States, 1887-1929" and ten items on a reading passage entitled "Marital Relationships" concerned with changes occurring in modern family life. A student with a good high school background, from a home where modern social problems are discussed and who reads current periodicals with interest would likely do well on such questions. Also, it is not probable that much change would be made in a term course. On the other hand, Part I includes items regarding the social functions of the family, cultural variations such as early forms of family organization, types of marriage and restrictions on the right to marry, trends in family size and population change, which the Social Science course stresses but which the student is not likely to have acquired previous to his college experience.

5. "The Position of Labor" was fifth in rank on gains from pre-test to post-test, holding the same rank on Part I but showing the smallest gain (9th) on Part II. One reason may be that Part I has 16 items on "Labor" while Part II has only five. It is also possible that general knowledge of contemporary affairs aided on Part II while a more technical background was necessary on Part I. Part II has items on the Taft-Hartley Act, CIO and AFL national legislative policy, the type of industry in which a strike would have the effect of a general strike, factors making for an increase in productivity. Part I has items on the nature of collective bargaining, terms used in labor management relations (yellow-dog contract, injunction, check-off), the causes of jurisdictional disputes, the functions of the National Labor Relations

Board, uses of injunctions in the early twentieth century, the nineteenth century position of the factory worker, and reasons for the absence of a labor party in the United States.

6. Sixth in rank of gains from pre-test to post-test is the unit on "Intergroup Conflicts", which placed sixth in Part I and fourth in Part II. The test had 19 and 9 items respectively in each part on this unit. Though attention in this unit on minority groups is centered around the negro problem only six of the twenty-eight items are on this question. The remainder have to do chiefly with rural-urban differences. In the two class sessions allocated to this unit the instructor found by use of a short quiz that greatest student need lay in the rural-urban area. Consequently, the time available was spent on that question. However, half the students were absent one day for the annual conference with high school principals and a good share of the time was used in scheduling the post-test, filling out comprehensive examination permit blanks. Thus, the class sessions on this unit, at least from the instructor's viewpoint, were not of great value. This may be a possible explanation of the low gains made.

7. The unit entitled "The Relationship Between Man and Government" carried the rank of seventh in gains made. There are 60 items on this unit in the test, 32 in the first part and 28 in the second--more than any other unit. The members of the experimental class made correct responses on 64 per cent of these items in the pre-test and increased their number of correct answers on the post-test by 8.5 per cent. Four class sessions were spent on this unit. Why was there not a larger

gain? The answer may be that broached above, that is, that the best freshmen students reach a maximum of approximately 75 per cent right responses on a comprehensive examination. If ability and an excellent background have contributed to a high level of competence upon college entrance, the gains during the first year cannot be expected to be very great. In the light of these findings, the students in the experimental class would probably have achieved more on other units had the instructor deleted this unit from class-time consideration and given attention to those units where the need was greater.

8. Eighth place in gains made is assigned the unit on "Maintenance of International Peace", which placed seventh on both Parts I and II. Twenty-nine items on international affairs are included in the test. There is no essential difference in the items in Part I and Part II, either in nature or in the achievement by the students on the items. They include questions about such concepts as sovereignity, international law, the balance of power; several are concerned with the foreign policies of the United States, trade and tariffs, international agreements. Four questions are on the United Nations. During the term the instructor used all the class time available for this unit on the historical background and the organization and problems of the United Nations. In this connection, it is interesting to note that the comprehensive examination taken by the students of the experimental class for grades in the course differed from the post-test in that it includes eight more items on this unit (a total of 37) eleven of which are on United Nations Organization alone. An analysis of the comprehensive

shows that these students made nine and a half per cent more right responses on these items than the corresponding items on the post-test. The reason may be that results of classroom instruction are measured better by the comprehensive than the post-test. It may also point to an explanation why the experimental class shows a higher grade average on the comprehensive than it does on the post-test.

9. The unit showing the smallest gain is that on "Organization for Production". In the initial test 55 per cent of the 55 items on this unit are answered correctly. On the final test 63 per cent right responses are made. Five days of class time were given to this unit, more than any other except the first unit of the course. The reason for the slight gain may be inadequate instruction but other factors are possibly involved. A comparison with other accelerated groups gives rather startling results. On the Fall, 1948 comprehensive examination the members of the experimental class averaged 68 per cent correct responses on the items on "Organization for Production" (5 per cent more than on the pretest), accelerated students from first term Social Science classes scored 64.6 per cent right, while those from second term classes, most of whom had been in college a year or more, many of whom (25 per cent) had taken college courses in economics, scored 75.5 per cent right answers. They had also, it should be noted, been selected for acceleration largely on a classroom examination on "Organization for Production". On the Winter term, 1949 comprehensive examination, second term special permission students in their first year in school made 60.2 per cent right responses and second year students accelerating from the same

second term classes scored 55.5 per cent correct. This was a different comprehensive from that given in the Fall, 1948, nevertheless, by comparison the experimental class made an excellent showing.

The most plausible explanation for the small gain on the unit "Organization for Production" is that students of the experimental class came to college with such an understanding of the field of economic behavior that in spite of a high percentage of time spent in class on the unit the gains could not be very great as these students had already attained a point near to the maximum in understanding commensurate with the maturity of freshmen students.

The hypothesis posited in this study is thus supported. "Gains on units of the Social Science course made by students of the experimental class, as shown by differences between scores on a pre-test and a post-test, are greatest in those areas not specifically covered by high school work." A recapitulation of the order of gains on the various units: (1) Fundamentals of Social Science, (2) Agriculture in Transition, (3) Character and Purposes of Contemporary Education, (4) Maintenance of the Family, (5) The Position of Labor, (6) Intergroup Conflicts, (7) The Relationship Between Man and Government, (8) Maintenance of International Peace, (9) Organization for Production. It is observed that the first four are not usually brought into high school classes or frequently discussed otherwise. The last four more properly fall into the subject matter in history, government, and economics classes and enter into discussions in periodicals, on the radio, in the home, and with friends. More data on these influences is reviewed in Chapter VII.

The Evaluation of the Class by the Students

January, 1949. Three weeks after the comprehensive examination and just before registration for the following quarter (January, 1949) the instructor mailed to each student in the experimental class a questionnaire seeking his evaluation of the course. The letter accompanying the questionnaire read in part:

> To each student of my Section 11 class:
>
> Here is the questionnaire to end all questionnaires! You have been very tolerant of the others I have given you and I appreciate your splendid cooperation.
>
> Now that you have your grade from the Social Science comprehensive I am wondering what you think of the course. So, I have a few questions to get some ideas other than those stated on the previous questionnaires. I am also interested in your further suggestions for the improvement of such a course.
>
> Will you please fill out the enclosed questionnaire as completely as possible and bring it to my office sometime during registration. I would also like a ten or fifteen minute talk with you when you come in. I am interested in getting a little more thorough insight into your ideas for improving the course.

Twenty-five students brought their completed questionnaires to the office of the instructor and remained for a short talk with him. A follow-up was made on the other three but without success.

The questionnaire carried the following instructions: "Please check as many responses under each question as fit your ideas. Answer freely and completely in the space for 'other comments'." The questions are given here as they appear on the questionnaire, with the number of students checking each response. Under "other comments" a selection of typical free response statements is made.

1. What is your present attitude toward the accelerated Social Science course?

__25__ I am glad I took Social Science in one term's work.

__2__ I wish the same course could have been spread over two terms.

__0__ I would rather have taken the regular three term course.

__0__ I would rather not have taken the course at all.

__0__ I took the course to get nine credits in a hurry and that is about all I got out of it.

Other Comments

"I wanted to get nine credits in a hurry but I learned a great deal in the course while getting them."

"I took the course to get nine credits in a hurry so as to have more time to spend on courses with greater interest."

"It saved time. I can now spend more time on my more difficult subjects."

"I like this type of class because I hate to lag behind in a class and wait for a few dumb ones."

"I am only going to be here two years so any extra time I can get to take more work on my major is very welcome."

2. How did the course affect your other studies at MSC last term?

__3__ I think I would have received better grades in my other courses if I had not taken this course.

__1__ It took time which I would rather have spent on other courses in which I was more interested.

__16__ It didn't particularly affect my preparation for other courses.

__7__ I would have had plenty of time for all my courses if I had budgeted my time better.

Other Comments

"The reading did take a lot of time but I still got my other homework in."

"It took a lot of time that I would have liked to spend in other ways but I think it was worth it."

"It took time only from my leisure."

"I didn't study enough in any of the courses that I took."

"I should have spread the reading assignments out more instead of bunching them together."

3. What do you think about the way the class work was conducted?

__7__ I would rather have had the instructor lecture all the time.

__5__ I would rather have had more class discussion on fewer topics, especially of a controversial nature.

__2__ I would prefer more individual work as too much class time was spent in areas where I was well prepared.

__2__ I would have studied harder and have been better prepared had the instructor graded us on our work.

__2__ The short tests given in class were helpful in guiding my study and should have been used more frequently.

Other Comments

"Would prefer a couple of long labs a week instead of the present system."

"Should have just discussed important issues. Too often got off on tangents not necessary."

"I liked the class toward the end when we were given quizzes and then had weak points explained."

"It's too easy to loaf when no tests are given."

4. How helpful were the clinic sessions?

__15__ The tests helped me to discover my weak points.

__14__ I used the findings of the tests in my further preparation.

__2__ I didn't follow them up with further study but wish I had.

__1__ I would rather the clinic sessions were used for more individual guidance.

3 I would rather the clinic sessions were used for further discussion.

Other Comments

"The clinic sessions could have entirely replaced the classroom sessions without ill effect."

"They were helpful and worthwhile. I certainly would not have done so well were it not for those sessions."

"The tests taken in the clinic helped me to discover points which needed work and built confidence. Also, experience in test taking is helpful."

5. If you didn't come to the clinic sessions very often or not at all what was the reason?

7 I didn't have time.

4 I didn't think they would do me much good.

6 I came two or three times but didn't find them helpful.

8 I would have come had the clinic sessions done something else. What?

Other Comments

"I wish I had gone to the clinic sessions but never seemed to find time or get around to it."

"Eight o'clock was too early."

6. Did you take other comprehensive examinations by special permission? What others did you take?

		Grades Received
2	Written and Spoken English	2 B
2	Effective Living	1 A 1 B

How did your preparation through this special Social Science class compare with the preparation you made on your own for these other comprehensives?

3 I was much more thoroughly prepared in Social Science. I had more confidence in myself.

0 There didn't seem to be any particular difference.

0 I could have made just as good preparation for the Social Science comprehensive examination by taking the regular 141 course and studying 142 and 143 on my own.

Other Comments

"I studied very little for the English comprehensive, less than for Social Science, but I felt more confident."

"We had no tests in Effective Living so I didn't know how I really stood."

7. What further suggestions do you have for the improvement of an accelerated course of this nature?

6 Two 2-hour class sessions a week instead of three fifty minute sessions.

3 Three 2-hour class sessions a week instead of three fifty minute sessions.

10 A condensed syllabus, concentrating on fewer sub-topics.

12 Readings that dig deeper, with less duplication--though not necessarily less in quantity.

Other Comments

"Longer classroom sessions would only subtract from students' time for independent study."

"Outside readings should have been cut down ... took too much time....impossible for me to read all I should have."

"Fewer readings with less duplication....chief criticism, bring readings up to date."

"The readings could be more definite and better, but not longer, because then many pages would never be read at all."

8. What could the instructor have done to stimulate you to greater effort?

"Nothing more than he did." (five replies).

"It was up to the individual."

"The instructor was fine. He did everything he could to help us."

"More challenging lectures, more content."

"More lectures touching on more of the syllabus outline."

"Give a general outline of what would be covered during the coming class."

"More short tests."

"Nothing much, as my interest in the subject is not very great."

9. If you had the course to take over again what would YOU do to get more out of it?

(Sixteen replies emphasized the need of spending more time on the readings. Some typical remarks follow.)

"I would spend more time on assigned readings."

"I would keep up with the readings and participate more in discussions."

"I would not skip any of the readings."

"I would read a few of the readings more thoroughly." "Also, I would read the newspapers and magazines a bit more closely, for I often find up-to-date information about subjects covered."

"I would budget my time better, not just coast along, and then do too much reading at one sitting." (Six replies).

"I would go to class more often and do less reading at one time."

"I'd outline more of the outside readings."

10. Do you think the privilege of taking this type of class should be extended to all students who make high scores on a pre-test? Why?

(Twenty-one said "yes", two had no opinion)

"Much of the course is merely review for many and can easily be given in one term."

"It's fairer to let them work faster if they want to."

"It helps them to make use of their ability instead of tying them down to three easy terms. They could put more work into fields where they need it."

"It helped me and I think if the student is willing to carry the extra work he should have a chance to do so."

"Those well prepared already in a subject shouldn't have to spend as much time on it as others do who do not have such a good background."

"Such an opportunity is a great morale booster and an incentive for further work in the social science field."

"Yes, it seems that this type of course is a step away from traditional education and should be extended to all students after conference with them to learn their backgrounds."

11. Did the feeling "I got a good score on the pre-test, I can do it again on the regular comprehensive" keep you from putting forth more effort on the course? Please comment.

(Sixteen replied that it did not. Seven said it did).

No.

"I knew that most of my answers on the pre-test were mostly guesses."

"I thought I was lucky on the pre-test. The post-test showed too many weaknesses."

"Mainly because a new examiner constructed the comprehensive."

"I was worried because I thought I might not make a higher score than on the first test. I wanted to do better. But it did bolster up my courage when the comprehensive came along."

"There were too many ahead of me to risk not working."

Yes.

"I thought the comprehensive would be just like the pre-test. I wasn't as worried as I should have been."

"In a way. I felt that since I passed the pre-test I must surely raise the grade to at least a B after a whole quarter's work."

"Yes....I devoted time....to other courses....on this account."

12. Do you think that permission to take the comprehensive should not be automatic but be given only on evidence of satisfactory work (B or A)?

(Twelve said "no", five "yes", and six had no opinion).

No.

"Definitely not--it should be automatic. When you know you can't back out of the comprehensive it makes you study. Otherwise, you'd have students getting C's who would wind up knowing a little about a lot and having to go into 142 while not being fully prepared in 141."

"....since the student has done a lot of work necessarily to keep up with the class and he should be allowed to try the comprehensive."

Yes.

"In the (experimental) class there was no indication of the type of work done or....more incentive if one is graded before the comprehensive in order to get permission to take it."

"Persons showing lack of interest or excessive absence do not merit this opportunity."

13. What course are you going to take in place of Social Science this term?

Start another Basic course

Biological Science (3)
Effective Living (5)
History of Civilization (3)
Literature and Fine Arts (3)

Others

Business Administration (2)
Economics (1)
Home Economics (1)
Studio Art (1)
Interior Decorating (1)
Conversational German (1)
Nothing (1)

14. What other Social Science courses do you hope to take before you finish college?

Economics (5)
Political Science (1)
Anthropology (1)
Social Psychology (1)
"Many, as I plan to major in Social Service." (1)
None planned (5)
Probably none (3)

15. What did you think of the Social Science Comprehensive Examinations?

TABLE XII

ATTITUDES OF EXPERIMENTAL CLASS STUDENTS ON THE SOCIAL SCIENCE COMPREHENSIVE

Statement of opinion	Strongly Agree	Mildly Agree	No Opinion	Mildly Disagree	Strongly Disagree
It was a good test of my knowledge and understanding of the social science field	10	11	2	2	
The special course gave me excellent preparation for the comprehensive	6	15	1	3	
The required readings gave me a good background for the questions asked	5	11	3	4	2
My general background helped most	11	7	14	3	
The questions, on the whole were easily understood	5	12	1	7	

Other Comments

"....very thorough and quite difficult."

"....quite a fair and easily understood exam."

"....very good type of test...application of what is important."

"....there should have been less emphasis placed on the practice comprehensive. I thought the actual comp would be just like that and it was quite a shock to find that it was really tough."

"I would have done much better if I had read 'Post-War Agricultural Policy', one of the few readings I missed."

"Perhaps I was not sure of the material but I found myself rereading questions several times before I could detect the meaning."

"The comprehensive was a good memory test, but not much of a test of practical knowledge."

"I don't think the comprehensive questions covered the things in the syllabi."

April, 1950. A questionnaire was mailed to all students who had participated in the experimental class to inquire concerning their scholastic record since the conclusion of the class and to see whether their general attitude toward the special class had changed with additional college experience.

Of the 28 students in the class, 21 replied. Tabulation of the results shows these 21 to have averaged 5.1 terms in college. They earned an average of 96.7 quarter credits, or 19.3 per term, with a credit-point ratio of 2.01 or slightly better than a B. Nine students had over 100 credits, averaging 111.2, or 22.2 per term with a credit ratio of 2.15. Seven had between 90 and 99 credits with an average of 94.4, or 18.8 per term, and a credit ratio of 2.01. Five earned less than 89 credits, averaging 73.5 or 14.7 per term and a credit-ratio of 1.6.

The record of these 21 students in other Basic College courses shows that ten comprehensive examinations were taken after one term in a course while nineteen were taken after two terms in the course. Thirty-seven courses were taken which ran the full three terms. The grade-point ratios for these courses average: Written and Spoken English, 2.10, Biological Science, 1.93, Physical Science, 2.00, Effective Living, 2.13, History of Civilization, 2.17, Literature and Fine Arts, 2.44.

Upper college courses in the social sciences were taken by nine of the 21 students. A grade-point ratio of 2.00 was maintained. In answer to the question, "Do you think that if you had taken the regular basic social science course (instead of the special class) you would have had a better background for these courses in the social sciences?" None thought they were in any way handicapped. Some of their comments are:

"I think my background was just as good as those who took the regular course." This student had one term of Principles of Economics and three terms of American Government, with a B average.

"No. I don't think two more terms would have affected these grades or my basic knowledge." This student had two terms of Principles of Economics and three terms of American Government obtaining two A's and three B's.

"No. I am in favor of accelerated groups, as better students tend to be held back in regular sections." This is from the only student majoring in social science. His courses and grades are: Principles of

Economics, A; American Government, B; Introduction to Sociology, B; Anthropology, B; History of Social and Political Thought, A.

The question was also asked, "Do you, for any other reason, now wish that you had not taken social science in the special section. Of the 21 replying, 20 replied in the negative and one in the affirmative. Some of the comments follow:

"No. I feel that we covered the course very thoroughly."

"No. Being in the special section taught me how to study, got me through work for which I had a strong background already, giving me time for other work." This student has acquired 101 credits with a 2.89 average.

"No. I'm glad I did. It was concentrated and so more interesting."

"No. Especially since I am a Social Science divisional major, it enabled me to use time gained in specialized work."

"Yes. I do not feel that the course offered enough specific material....it was either a repetition of what had been previously learned in high school or if it was new it was dealt with very generally and not well integrated. It may very possibly be that as a first term freshman I did not know how to attack the readings for the course and integrate them myself. The idea behind this special section is sound but I think it might be more advantageous if it were given to students who had already adjusted to learning on the college level. Most first term freshmen, I believe, cannot do that much reading and absorb the pertinent facts without spending an amount of time that detracts from

other courses." This student had transferred to another university. She has maintained a 2.3 grade-point ratio.

Summary

The experimental class consisted of 28 students, selected by a social science pre-test, who were given the three term Basic College Social Science course in one term. Instructor contact with the students involved the normal fifty minute class session three times weekly plus two weekly "clinic" sessions to which interested students could come for guidance in their work. The "clinic" came to be used chiefly for voluntary test taking and diagnostic analysis of the tests for student help.

All students took the comprehensive examination, normally given to students completing three terms of Social Science and those accelerated through high scholarship in the regular sections of the course. The results showed 12 A, 14 B, and 2 C grades.

Gains made were discovered through use of the pre-test, a post-test technique in which the items were organized according to the nine units of the course. The results showed gains as high as 15.3 per cent and as low as 7.6 per cent, with an average over-all gain of 10.4 per cent.

Further analysis of the results was made to answer the question as to whether the gain of 10.4 per cent was a reasonable and justifiable gain for superior students in a one term course. A comparative study was made with a Board of Examiners inquiry consisting of a control group of students who did not take Social Science and an experimental

group which did. Through a pre-test, post-test the Board of Examiners found that the control group gained 9.7 per cent and the experimental group 23.3 per cent. Thus, the experimental class did not seem to gain much more than students not taking the course at all.

Following a thorough review of the differences between the experimental class and the groups in the Board of Examiners study the conclusion is reached that members of the experimental class had entered college at a level of understanding of the social science field approximately that of average students who have taken the Basic Social Science course. Therefore, the gain required to bring them up to the maximum of students taking the course is not as great as that required of a group which is representative of the whole population of Social Science students.

The gains made by members of the class on each unit of the course is also analyzed. The units of the course in the order of largest gains is as follows: 1. Fundamentals of Social Science, 2. Agriculture in Transition, 3. Character and Purposes of Contemporary Education, 4. Maintenance of the Family, 5. The Position of Labor, 6. Intergroup Conflicts, 7. Relationship Between Man and Government, 8. Maintenance of International Peace, 9. Organization for Production. Upon examining the possible reasons for gains in the above order it would seem that the third hypothesis, forming the basis of this study, is supported.[1] This hypothesis is, "Gains made by students in a one term accelerated class in Social Science are greatest in those areas not

specifically covered by high school work." It is noted that the units at the end of the list, "government", "peace", and "production" are included more frequently in high school social studies courses than any of the preceeding units. Also, those at the first of the list are less frequently treated in secondary school work.

A student evaluation of the experimental class was made through questionnaire and interview shortly after members of the class had received their grades on the comprehensive examination. Of the 28 in the class 25 responded. They unanimously checked the statement, "I am glad I took Social Science in one term's work." In regard to the heavy study load demanded by the course 64 per cent thought that it did not particularly affect their preparation for other courses. That they would have had plenty of time for all their courses if they had budgeted their time better was checked by 28 per cent.

Most students approved of the class procedure, though 28 per cent wanted more lectures and 20 per cent more discussion. The short daily quizzes were said, by 84 per cent, to be helpful in guiding their study. Concerning the "clinic" sessions, 60 per cent stated that the tests helped them to discover their weak points while 56 per cent used the findings on the tests in further preparation of the work of the course. Only a few would have used the "clinic" for other purposes.

On suggestions for improvement of a one-term accelerated course, 36 thought they would change the amount of time per class meeting. Two 2-hour class sessions a week were wanted by 24 per cent. Three 2-hour class sessions a week were desired by 12 per cent. Course changes were

supported as follows: 40 per cent asked for a condensed syllabus which would concentrate on fewer sub-topics; 48 per cent desired "readings that dig deeper, with less duplication--though not necessarily less in quantity."

In response to the question, "Do you think the privilege of taking this type of class should be extended to all students who make high scores on a pre-test," 84 per cent answered in the affirmative. The others had no opinion. Slightly under 50 per cent thought that permission to take the comprehensive examination following a one-term special class should be automatic and not dependent upon work done in the class, while about 22 per cent thought a B or an A should be required. The rest had no opinion.

The questionnaire also asked for student opinion on the comprehensive examination. A total of 84 per cent considered the comprehensive a good test of their knowledge and understanding of the social science field and the same percentage thought the special course gave them "excellent preparation for the comprehensive." The helpfulness of the required readings was supported by 64 per cent. Those who gave most of the credit to their general background amounted to 72 per cent. That the questions, on the whole, were easily understood was agreed to by 68 per cent.

Another questionnaire mailed to members of the class, fifteen months after the previous questionnaire, inquired concerning scholastic standing at that time and students' attitudes toward the course. Of the 28 class members 21 replies were received. Their responses

revealed an average of 19.3 credits per term for 5.1 terms in college, with a B average. They had accelerated in other basic courses in 29 instances. The grade-point ratio achieved in other basics is 2.13.

Upper college social science courses were taken by nine students and a B average was maintained. All students considered the one-term course no handicap to effective work in other courses in the social sciences. All except one were glad they had the course in one term, feeling that it recognized their better background, that they had covered the work as thoroughly as a regular class, and had saved some time which could be used to better advantage in other courses.

CHAPTER V

A COMPARATIVE ANALYSIS OF ACHIEVEMENT ON THE COMPREHENSIVE EXAMINATION BETWEEN THE EXPERIMENTAL CLASS, OTHER ACCELERATED GROUPS AND A GROUP OF NON-ACCELERATES

The primary purpose of this chapter is to present the evidence testing the hypothesis: Students (selected by a social science pre-test) who participate in a one-term special class so increase their knowledge and understanding of social science that they attain significantly higher levels of achievement on the items of the comprehensive examination pertaining to the nine units of the course than each of the following groups:

(a) Students in their first year in college accelerated on the basis of grades obtained in the first term of the Social Science course.

(b) Students in their second year in college accelerated on the basis of grades obtained in the first term of the Social Science course.

(c) Students with a varying time in college accelerated by grades obtained in the first and second terms of Social Science

(d) Students having all three terms of Social Science whose scores on the comprehensive examination are in the same range as those of the one-term special class.

Method of Analysis

In making a comparison of the achievement of the experimental class with other accelerated and non-accelerated groups of students taking the Social Science comprehensive examination it is quite necessary that the same examination be used. Every term a new comprehensive examination is given which varies from the others in the difficulty and discriminating power of the items, in the number of items allocated to each unit of the course, and in particular subject matter included. Comparison through the means of standard scores could be made but the variations in the examinations just mentioned would throw doubt on the validity of the results. This study, therefore, confines the analysis to those groups of students taking the comprehensive examination in Social Science in the Fall term, 1948.

Groups of students included in the study.[1]

1. Experimental Class. Twenty-eight students in the experimental class, a one-term special section of the Social Science course in which the year's course was given to a group of selected students.

2. First Term (a). Twenty-five students who took the regular first term of Social Science and because of A grades in the course and the approval of the department were permitted to take the comprehensive examination. The designation (a) is used to identify this group as freshmen in their first term in college. Groups 1 and 2, both in their first term, are therefore more nearly alike in amount of college experience than any other groups.

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1. Identification of the groups in the tables follows the numbering or the abbreviation here used.

3. First Term (b). Ten students also taking the comprehensive examination after the first term in the regular Social Science course. The (b) designates them as sophomores in their fourth term in college. They had received the benefit of a year of college experience.

4. Second Term. Forty-three students who have had two terms of the regular Social Science course and because of B grades or better in both terms, and the approval of the department were granted permission to take the comprehensive examination. Of these students slightly less than 60 per cent had been in college five terms, 25 per cent had attended two or three terms, and 15 per cent more than five terms. A distribution similar to this is usually characteristic of second term Social Science students taking the comprehensive examination in any other than the Winter term. Since most students begin their Social Science course in the Fall term, the bulk of students taking the comprehensive by special permission from second term classes, appears in the Winter term. For this reason a separate study is added as a footnote in this chapter[1] including two groups of second term special permission students taking the comprehensive in the Winter, 1949.

5. Third Term. Forty-seven students taking the Social Science comprehensive examination in the Fall 1948 who have had the full three terms of the course. This group was drawn from a sample used by the Board of Examiners in making its studies, but the 47 taken from the sample were only those who made scores on the comprehensive examination within the same range as those of the experimental class.

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1. Infra., p. 138.

The grades on the Social Science comprehensive received by students in these five groups is presented in Table XIII. The table gives the percentages of students in each group falling in each grade catagory. This data is presented for the information of the reader and is not to be used in this study for analytical purposes.[1]

TABLE XIII

PERCENTAGES OF STUDENTS RECEIVING DESIGNATED GRADES ON THE SOCIAL SCIENCE COMPREHENSIVE EXAMINATION, FALL, 1948

Groups	No. of Students	Grades on Comprehensive			
		A	B	C	D
(1)	(2)	(3)	(4)	(5)	(6)
1. Experimental Class	28	43	50	7	
2. First Term (a)	25	24	44	32	
3. First Term (b)	10	40	40	10	10
4. Second Term	43	37	61		2
5. Third Term	47	6	60	34	

1. The superiority of students of the experimental class over other groups of students is readily noted in Table XIII. By inspection of the table it is obvious that significant differences exist between group (1) and groups (2) and (5), though not necessarily between group (1) and groups (3) and (4). Twelve or 43% received A and 14 or 50% B. This is distinctly better than the next most comparable group (2) who entered college at the same time as those in the experimental class and who also had one term of Social Science. It is somewhat better than second year students accelerating from the first term of regular Social Science classes. When compared with students accelerating from second term classes in Social Science the advantage is with the latter (it is noted above that 75% of these students have had five or more terms in college). However, the experimental class greatly excels those students having all three terms of social science whose scores on the comprehensive (drawn from the Board of Examiners' sample) are in the same range as the experimental class.

The data of this table would definitely indicate the advantages either of the special class or acceleration from the second term of the regular course after five terms of attendance in college. This study, however, is not content with the analysis of comprehensive grades, but chooses the more exacting task of examining the achievement on the comprehensive on each of the nine units of the Social Science course.

How the comprehensive is analyzed. The Social Science comprehensive examination is a four-hour test consisting of 300 items chiefly of the multiple choice type and divided into two parts. Part I seeks to test factual knowledge and Part II ability to apply such knowledge.

The first step in this analysis was to break down the 150 items in each part of the comprehensive into nine groups each one of which includes those items pertaining to each unit of the Social Science course (as was done in the analysis of the pre-test, post-test in Chapter IV). A scoring key was made for each unit in each part of the examination and each of the 153 papers was thus scored 18 times, or a total of 2754 scoring operations. The International Business Machines scoring machine could not be used for this work as succeeding statistical work required that scores be tabulated in such a way that identification could later be made.

The next step in the analysis is the application of the statistical technique of the analysis of variance for the purpose of determining whether significant differences exist between the five groups in their achievement on each of the units of the course on Part I and Part II of the comprehensive examination. The results are given in Tables XIV and XV.

On Part I of the comprehensive examination the analysis of the variance between the groups results in "F" ratios which are significant at the one per cent level for the following groups: (2) The Relationship Between Man and Government, (4) Organization for Production, (5) The Position of Labor, (6) Agriculture in Transition.

On Part II of the comprehensive the analysis of variance between the groups results in "F" ratios which are significant at the one per cent level for the following groups: (4) Organization for Production, (5) The Position of Labor, (7) Maintenance of the Family, (8) Intergroup Conflicts, (9) Maintenance of International Peace; and at the five per cent level for: (3) Character and Purposes of Contemporary Education, (6) Agriculture in Transition.

On these units where significant "F" ratios appear the analysis is carried further to identify those groups which show significantly higher achievement. Each of the five groups is therefore paired with every other group to determine whether there are significant differences in their mean scores. The "t" test for significance is used for this analysis. The results are presented in Table XVI.

For easier and more rapid usability Table XVI is reconstructed in Table XVII. The relative achievement of the various groups may thus be more quickly and adequately compared. Abbreviated unit titles are used rather than numbers to hasten identification. An interpretation of these tables is made following a short digression to consider differences between the groups in their intelligence and reading ability and to use another statistical technique to equalize the groups on such abilities.

Group differences on psychological and reading tests. Tables XVI and XVII show a wide variation in achievement between the five groups of students studied. No consideration has as yet been given to the differences in intelligence and reading abilities which are manifest between these groups of students. The inference may justifiably be made

TABLE XIV

ANALYSIS OF VARIANCE, PART I, COMPREHENSIVE FALL 1948

Unit Number	Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square Variance	"F"	Unit Number	Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square Variance	"F"
1	Total	152	580.33			6	Total	152	889.06		
	Between Groups	4	22.99	5.77			Between Groups	4	142.12	35.53	
	Within Groups	148	557.34	3.76	1.53		Within Groups	148	746.94	5.05	7.04
2	Total	152	576.23			7	Total	152	1254.68		
	Between Groups	4	80.97	20.24			Between Groups	4	68.86	17.21	
	Within Groups	148	495.26	3.35	6.04		Within Groups	148	1185.82	8.01	2.15
3	Total	152	401.90			8	Total	152	653.53		
	Between Groups	4	6.13	1.53			Between Groups	4	25.85	6.46	
	Within Groups	148	395.77	2.67	.57		Within Groups	148	627.68	4.24	1.52
4	Total	152	857.23			9	Total	152	1076.84		
	Between Groups	4	135.95	33.99			Between Groups	4	39.03	9.76	
	Within Groups	148	721.28	4.87	6.98		Within Groups	148	1037.81	7.01	1.39
5	Total	152	323.31			All Part I	Total	1376	12,736.8		
	Between Groups	4	79.34	19.84			Between Groups	4	374.2	93.56	
	Within Groups	148	243.97	1.65	12.02		Within Groups	1372	12,362.6	9.01	10.38

Note: A double underline indicates significance at the one per cent level. Unit numbers refer to units of the Social Science course as designated in Table V.

TABLE XV

ANALYSIS OF VARIANCE, PART II, COMPREHENSIVE, FALL 1948

Unit Number	Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square Variance	"F"
1	Total	152	533.3		
	Between Groups	4	32.5	8.1	
	Within Groups	148	500.8	3.4	2.4
2	Total	152	895.9		
	Between Groups	4	46.3	11.6	
	Within Groups	148	849.6	5.7	2.0
3	Total	152	603.8		
	Between Groups	4	38.0	9.5	
	Within Groups	148	565.8	3.8	2.5
4	Total	152	649.4		
	Between Groups	4	64.8	16.2	
	Within Groups	148	584.6	4.0	4.1
5	Total	152	805.6		
	Between Groups	4	104.8	26.2	
	Within Groups	148	700.8	4.7	5.5
6	Total	152	560.2		
	Between Groups	4	36.2	9.0	
	Within Groups	148	524.0	3.5	2.5
7	Total	152	212.4		
	Between Groups	4	18.4	4.6	
	Within Groups	148	194.0	1.3	3.5
8	Total	152	515.5		
	Between Groups	4	44.8	11.2	
	Within Groups	148	460.7	3.1	3.6
9	Total	152	872.3		
	Between Groups	4	103.4	25.9	
	Within Groups	148	768.9	5.2	5.0
All Part II	Total	152	12,698.0		
	Between Groups	4	272.0	68.0	
	Within Groups	148	12,426.0	9.1	7.5

Note: A single underline indicates significance at the five percent level, a double underline at the one percent level.
Unit numbers refer to units of the Social Science course as designated in Table V.

TABLE XVI

THE "t's" OF GROUPS WHOSE MEAN SCORES SHOW SIGNIFICANT DIFFERENCES WITH THE MEAN SCORES OF OTHER GROUPS

Groups Compared	Units of Part I				Units of Part II						
	2	4	5	6	3	4	5	6	7	8	9
1-2	2.46[1]	2.10[1]	3.91[1]	2.63[1]					2.84[1]	3.52[1]	3.94[1]
1-3					2.27[1]					2.16[1]	
1-4					2.08[1]	3.40[4]					2.70[1]
1-5	3.89[1]	3.21[1]	2.97[1]	4.04[1]	2.87[1]		2.90[1]		3.26[1]	2.38[1]	4.05[1]
2-3			2.15[3]								2.05[3]
2-4	3.72[4]	3.24[4]	6.16[4]	2.63[4]		2.96[4]	2.64[4]	2.21[4]	2.14[4]	2.48[4]	
2-5											
3-4		2.21[4]	2.46[4]								
3-5				2.73[3]							
4-5	3.92[4]	4.68[4]	5.51[4]	5.05[4]		2.14[4]	4.43[4]	2.33[4]	2.45[4]		

Note: A single underline indicates significance at the five percent level, a double underline at the one percent level. The number of the group whose mean is the larger follows each "t".

RECONSTRUCTION OF TABLE XVI TO SHOW RELATIONSHIPS BETWEEN THE ACHIEVEMENT OF EACH GROUP AND EVERY OTHER GROUP

Group	1. The Experimental Class		
	Excels	Is Excelled By	No Significant Differences
2 1st Term (a)	Part I .01 - (5) Labor .05 - (2) Gov't, (4) Prod. (6) Agric. Part II .01 - (7) Family, (9) Peace (8) Intergroup Conflicts		Part I (1) Fundamentals, (3) Educ., (8) Intergroup Conflicts (9) Peace Part II (1) Fundamentals, (2) Gov't., (3) Educ., (4) Prod., (5) Labor, (6) Agric.
3 1st Term (b)	Part II .05 - (3) Educ. (8) Intergroup Conflicts		Part I all 9 units Part II (1) Fundamentals, (2) Gov't., (4) Prod., (5) Labor, (7) Family, (9) Peace
4 2nd Term	Part II .01 - (9) Peace .05 - (3) Educ.	Part II .01 - Prod.	Part I all 9 units Part II (1) Fundamentals, (2) Gov't., (5) Labor, (6) Agric., (7) Family (8) Intergroup Conflicts
5 3rd Term	Part I .01 - (2) Gov't., (4) Prod., (5) Labor, (6) Agric. Part II .05 - (8) Intergroup Conflicts .01 - (3) Educ., (5) Labor (7) Family, (9) Peace		Part I (1) Fundamentals, (3) Educ., (7) Family, (8) Conflicts, (9) Peace. Part II (1) Fundamentals, (2) Gov't., (4) Prod., (6) Agric.

(Continued next page)

TABLE XVII (continued)

Group	2. 1st Term (a)	
	Excels	Is Excelled By	No Significant Differences
1 Exper. Class		Part I .01 - (5) Labor. .05 - (2) Gov't, (4) Prod. (6) Agric. Part II .01 - (7) Family, (8) Conflicts (9) Peace.	Part I (1) Fundamentals, (3) Educ., (8) Conflicts, (9) Peace. Part II (1) Fundamentals, (2) Gov't, (3) Educ., (4) Prod., (5) Labor, (6) Agric.
3 1st Term (b)		Part I .05 - (5) Labor Part II .05 - (9) Peace	Part I All except (5) Labor. Part II All except (9) Peace
4 2nd Term		Part I .01 - (2) Gov't, (4) Prod., (5) Labor. .05 - (6) Agric. Part II .01 - (4) Prod., (5) Labor .05 - (6) Agric., (7) Family, (8) Conflicts	Part I (1) Fundamentals, (3) Educ., (7) Family, (8) Conflicts, (9) Peace. Part II (1) Fundamentals, (3) Educ. (2) Gov't, (9) Peace.
5 3rd Term			Part I All 9 units Part II All 9 units

(Continued next page)

TABLE XVII (continued)

Group	3. 1st Term (b)		
	Excels	Is Excelled By	No Significant Differences
1 Exper. Class		Part II .05 - (3) Educ., (8) Conflicts	Part I All 9 units Part II (1) Fundamentals, (2) Gov't., (4) Prod., (5) Labor, (6) Agric., (7) Family, (9) Peace
2 1st Term (a)	Part I .05 - (5) Labor Part II .05 - (9) Peace		Part I All except (5) Labor. Part II All except (9) Peace.
4 2nd Term		Part I .05 - (4) Prod., (5) Labor.	Part I (1) Fundamentals, (2) Gov't., (3) Educ., (6) Agric., (7) Family, (8) Conflicts, (9) Peace. Part II All 9 units
5 3rd Term	Part I .01 - (6) Agric.		Part I All except (6) Agric. Part II All 9 units.

(Continued next page)

TABLE XVII (continued)

Group	4. 2nd Term		
	Excels	Is Excelled By	No Significant Differences
1 Exper.Class	Part II .01 - (4) Prod.	Part II .01 - (9) Peace .05 - (3) Educ.	Part I All 9 units Part II (1) Fundamentals, (2) Gov't, (5) Labor, (6) Agric., (7) Family, (8) Conflicts.
2 1st Term (a)	Part I .01 - (2) Gov't, (4) Prod., (5) Labor .05 - (6) Agric.		Part I (1) Fundamentals, (3) Educ. (7) Family, (8) Conflicts, (9) Peace Part II (1) Fundamentals, (2) Gov't, (3) Educ., (9) Peace.
3 1st Term (b)	Part I .05 - (4) Prod., (5) Labor		Part I (1) Fundamentals, (2) Gov't, (3) Educ., (6) Agric., (7) Family, (8) Conflicts, (9) Peace. Part II All 9 units
5 3rd Term	Part I .01 - (2) Gov't, (4) Prod., (5) Labor, (6) Agric. Part II .01 - (5) Labor .05 - (4) Prod., (6) Agric., (7) Family.		Part I (1) Fundamentals, (3) Educ., (7) Family, (8) Conflicts, (9) Peace. Part II (1) Fundamentals, (2) Gov't, (3) Educ., (8) Conflicts, (9) Peace.

(Continued next page)

TABLE XVII (concluded)

Group	5. 3rd Term		
	Excels	Is Excelled By	No Significant Differences
1 Exper. Class		Part I .01 - (2) Gov't, (4) Prod., (5) Labor, (6) Agric. Part II .01 - (3) Educ., (5) Labor (7) Family, (9) Peace .05 - (8) Conflicts	Part I (1) Fundamentals, (3) Educ., (7) Family, (8) Conflicts, (9) Peace. Part II (1) Fundamentals, (2) Gov't, (4) Prod., (6) Agric.
2 1st Term (a)		Part I .01 - (6) Agric.	Part I All except (6) Agric. Part II All 9 units.
3 1st Term (b)			Part I All 9 units Part II All 9 units
4 2nd Term		Part I .01 - (2) Gov't, (4) Prod., (5) Labor, (6) Agric. Part II .01 - (4) Prod., (6) Agric., (7) Family .05 - (5) Labor	Part I (1) Fundamentals, (3) Educ., (8) Conflicts, (9) Peace. Part II (1) Fundamentals, (2) Gov't, (3) Educ., (8) Conflicts, (9) Peace.

that had these groups been equalized on the basis of their ability as shown on psychological and reading tests such wide differences would not have occurred.

Studies made by the Board of Examiners of Michigan State College and some made by the writer of this paper in the same school show a correlation with a high significance between grades made on the comprehensive examination and the decile rank achieved on psychological and reading tests. For example, the Board of Examiners found a correlation of .40 between the comprehensive examination and the decile ranking of the students on the American Council on Education Psychological Examination. A correlation of .45 was found between the comprehensive and decile ranking on the reading test.[1]

The writer made a study in correlation between Social Science comprehensive grades and decile rankings on the linguistic part of the psychological test and also between the comprehensive grades and the deciles on the reading comprehension test. The Board of Examiners sample of 195 students taking the Spring term, 1946 comprehensive was used. The former showed an "r" of .45 and the latter, .55. These are highly significant correlation coefficients since, for this number of students an "r" of .19 is significant at the one per cent level.

Implications of such high correlations between success on the comprehensive and deciles on psychological and reading tests are frequently made to the effect that the Social Science comprehensive is little more

1. A Report on Several Problems Related to the Basic College Comprehensive Examinations, an unpublished study by the Board of Examiners, Michigan State College, East Lansing, 1948, p. 10.

than an intelligence and reading test and any student of high ability can pass it acceptably. Though discounted by studies in pre-tests and post-tests by the Board of Examiners, the attitude persists.

The hypothesis to be tested here is:[1] Any differences discovered between the five groups of students examined under the first hypothesis cannot be attributed to differences in ability as shown by decile ranking on the American Council on Education Psychological Examination and the Cooperative Reading Test. Another factor or factors are present to account for such differences in achievement on the comprehensive examination.

The procedure used to test this hypothesis is to first examine the psychological and reading deciles to see whether significant differences are apparent between the groups. Table XVIII gives the average deciles for the groups on the psychological and reading tests. Table XIX lists the "F" ratios resulting from the application of the analysis of variance to the total and to the part deciles on the psychological and reading tests. It is noted that the deciles on the total psychological test show an "F" significant at the one per cent level, but when broken down no significance is shown on the quantitative part of the test, and significance only at the five per cent level on the linguistic part. It is also seen that on all parts of the reading test highly significant differences appear. Table XX gives the results of using the "t" test for significance to determine adequate differences between the groups in this study.

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1. Supra., p. 8, Major hypothesis No. 2.

TABLE XVIII

AVERAGE DECILE RANKING ON PSYCHOLOGICAL AND READING TESTS

Group	Psychological			Reading			
	Q	L	Total	V	R	C	Total
1. Exper. Class	5.9	8.4	7.6	8.7	9.1	8.9	9.1
2. 1st Term (a)	6.5	7.7	7.4	8.4	8.0	8.3	8.6
3. 1st Term (b)	6.3	7.3	7.1	6.8	6.9	6.6	6.9
4. 2nd Term	6.8	8.3	7.9	8.1	8.0	8.3	8.3
5. 3rd Term	5.6	5.9	5.8	6.2	6.2	6.7	6.6

TABLE XIX

"F" RATIOS OF DIFFERENCES BETWEEN MEANS OF DECILE RANKING ON ENTRANCE TESTS BY FIVE GROUPS OF STUDENTS

Test	"F" Ratio
Psychological - Total	4.90
Psychological - Quantitative	1.08
Psychological - Linguistic	3.07
Reading - Total	8.70
Reading - Verbal	8.03
Reading - Rate	9.18
Reading - Comprehension	7.47

TABLE XX

SIGNIFICANT VALUES OF "t" OBTAINED BETWEEN GROUPS OF STUDENTS ON ENTRANCE TESTS

Groups Compared	Psychological			Reading			
	Quantitative	Linguistic	Total	Verbal	Rate	Comprehension	Total
1 & 2							
1 & 3				2.37[1]	2.80[1]	3.11[1]	2.80[1]
1 & 4					2.19[1]		
1 & 5		4.27[1]	3.17[1]	4.80[1]	5.68[1]	4.58[1]	5.12[1]
2 & 3						2.26[2]	2.23[2]
2 & 4							
2 & 5		2.30[2]	2.67[2]	4.06[2]	3.39[2]	3.20[2]	3.94[2]
3 & 4						2.39[4]	
3 & 5							
4 & 5		4.54[4]	4.00[4]	4.00[4]	3.86[4]	3.65[4]	3.82[4]

An analysis of the findings of Table XX follows.

No significant differences are found in deciles on the psychological or reading tests between the following groups:

1. Between groups 1 and 2, the experimental class and the first term special permission students in their first term in college, on any part of the psychological or reading test.

2. Between groups 2 and 4, the first term accelerated students in their first year in college and the second term special permission students, on any part of the psychological or reading tests.

3. Between groups 3 and 5, first term accelerated students in their fourth term in college and the third term students, on any part of the psychological or reading tests.

4. Between any of the groups on the quantitative part of the psychological test.

5. Between any of the groups of students who took the comprehensive examination by special permission (including the experimental class) on the linguistic part of the psychological test.

Significant differences are found between the following groups.

1. On the linguistic part of the psychological test the third term students (group 5) are the only ones surpassed. Significant differences are found between group 5 and groups 1, 2, and 4.

2. The experimental class received higher decile rankings than groups 3 and 5.

3. The experimental class betters the second term special permission students only in reading rate.

4. The first term (a) students (group 2) and the second term students (group 4) had significantly higher deciles than the first term (b) students (group 3) on reading comprehension only, but they were significantly higher than the third term students on all parts of the reading test.

5. The first term students in their fourth term in college (group 3) and the third term students (group 5) surpass (significantly) no other groups of students on any parts of the psychological or reading tests.

Differences in achievement remaining after adjustments are made for variations in intelligence and reading ability. The most common practice of equalizing groups of students who show wide differences on some factors is to choose from the groups students who are matched in a common ability. Such procedure has not been possible in this study. Furthermore, another statistical technique is available which renders matching unnecessary, the analysis of co-variance.[1]

Analysis of covariance presents a convenient method whereby it can be determined whether differences still exist between the five groups of students in their achievement on units on the comprehensive examination, after allowances are made for differences in ability as

1. "The utility of covariance lies in its ability to substitute for matching technique. It permits stringent statistical analysis of data consisting of a limited number of observations without the devastating effect of sample shrinkage resulting in the application of commonly used matching techniques. In case of larger samples, its simplicity offers economies in labor and decreases chances for methematical errors." Summary of the article, Marvin J. Taves, The Application of Analysis of Covariance in Social Science Research, American Sociological Review, Vol. 15, No. 3 (June 1950), p. 381.

shown on the psychological and reading tests. This method enables one to estimate the regression between decile ranking on the psychological test or the reading test and the scores achieved by the students on any part of the comprehensive examination. The regression coefficient may then be used to correct or adjust the examination scores so as to allow for differences in ranking on the psychological or reading tests. Having done this it is possible to test the significance of the differences in the adjusted score means through the method of analysis of variance.

The analysis of covariance was therefore applied to scores obtained by the five groups of students in the several units of the course where significant differences were already in evidence. The decile rank on the total score of each ability test was used. After adjusting for differences in total decile ranking on the total psychological tests the following "F" ratios resulted: Unit 2, Part I, 4.9; Unit 5, Part I, 12.0; Unit 5, Part II, 3.9; Unit 9, Part II, 4.4. When adjustments were made for differences in decile rankings on the total reading tests the following "F" ratios were obtained: Unit 2, Part I, 3.7; Unit 5, Part I, 11.3; Unit 5, Part II, 6.2; Unit 9, Part II, 4.0. All of these "F" ratios are significant at the one per cent level. Therefore, after adjustments had been made, highly significant differences still remained and it was not considered necessary to apply the method of analysis of covariance to all the units in both parts of the comprehensive examination.

The hypothesis is therefore supported, that though a relationship exists between student ability as shown by the psychological and reading

tests, these tests do not explain differences of achievement on the comprehensive examinations. Further support for this conclusion can be found in the fact that differences in psychological tests and reading ability do not result in differences of achievement on all units of the course. If it was a cause and effect relationship it surely would be manifested on every unit of the course and not merely on some. That other factors are present to account for differences in achievement seems to be evident. Other parts of this study attempt to reach some conclusions as to what these factors might be.[1]

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1. Chapter VI analyzes some factors in the background of students which may have a bearing on their familiarity with the concepts of social science.

In addition to these studies further indication of the influence of various background factors is found in an additional analysis of two groups of students from second term Social Science classes who took the Winter Term, 1949, comprehensive examination by special permission.

The first group consisted of 101 students who entered college in the Fall, 1948 and hence were finishing their second term in college. The second group (51 students) entered in the Fall, 1947 and were concluding their fifth term. Both groups, peculiarly, had the same average age, 20.6 years. The first group, however, ranked in the eighth decile on the psychological and reading tests and the second had an average rank in the sixth decile.

Separate scores were obtained for each student on those items pertaining to each unit of the course and on each part of the examination (18 unit scores for each student). The "t" test for the significance of the difference between the means of these two groups was applied to each of the nine units in both parts of the examination. The result was that significant differences appeared at the five per cent level on only two units in Part I, i.e., "The Relationship Between Man and Government" and "Organization for Production". In Part II the only unit showing a significant difference was that of "Organization for Production", at the one per cent level. In all three cases the difference was in favor of the first group. On the fifteen other unit scores no significant differences appeared.

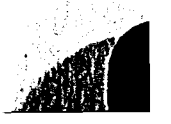
Thus students who are a year apart in college stood almost on a par though they ranked two deciles apart on intelligence and reading tests. Further support is therefore given to the hypothesis here being tested that other factors than ability as shown on psychological and reading tests must be considered to account for competence in social science.

These two groups of students are included in the study of student background (Chapter VI) with further interpretation of the above phenomena.

Summary and Interpretation of Differences in Achievement Between Groups

1. The Experimental Class. The special permission students from second term Social Science classes were the only ones who excelled the experimental class on any unit. Highly significant differences between the means of these groups appeared in the unit on "Organization for Production", and this only on Part II of the examination. On Part I, dealing with factual knowledge no significant differences appeared. But there is a difference in the ability of the two groups to apply the facts and principles learned, as tested in Part II. Two factors may account for this. First, students from the second term of Social Science taking the comprehensive do so because of at least a "B" grade in the first term and an equal grade of work by mid-term in the second-term of Social Science. The typical mid-term examination is on the unit "Organization for Production". Thus, selection for special permission is made partially on the basis of competence in this unit of the course. Second, it should be remembered that 75 per cent of these students had been in college for a year or more and about a quarter of them had already taken courses in economics and business administration. The maturing influence of this additional college experience should have its effect in better thinking on economic problems.

The experimental class showed itself to be quite superior to accelerated students from first term Social Science classes who are in their first term in college, exceeding them significantly on four units in Part I (one from the first term's work and all of the second term's work) and three units in Part II of the comprehensive (all from the



third term of the course). However, the class is about on a par with first term special permission students in their second year in school, bettering them only on two units of Part II.

In comparison with the group of students having all three terms of the course, the experimental class shows its highest level of achievement. These third term students are excelled in over half of the units of the course on both parts of the comprehensive.

2. 1st Term (a). Students from first term Social Science classes who are in their first term in college and who take the comprehensive examination by special permission after their first term did not excel any other groups on any unit of the course. It might be expected that having been selected on the basis of "A" grades on the unit "Fundamentals of Social Science" this group would show higher achievement on items on the comprehensive examination belonging to this unit. Also, the factor of recency should work to give these students an advantage over third term students who are farther removed from class consideration of the unit.

As noted in the previous section the experimental class excels this first term group on one unit of the first term's work and all of the second term's work on Part I of the comprehensive. On Part II of the comprehensive the experimental class shows significantly higher achievement on the work of the third term in the course.

When compared with students having all three terms of the Social Science course no significant differences are displayed on any part of the course.

3. 1st Term (b). These students, beginning their second year in college and accelerating from first term Social Science classes, show few significant differences with any groups. However, those in this group surpass the 1st term (a) group on one unit in each part of the comprehensive: The Position of Labor in Part I, and Maintenance of Peace in Part II. The only other difference is with third term students on the unit "Agriculture in Transition", in Part I only.

4. 2nd Term. This group of students taking the comprehensive examination after two terms of Social Science are excelled only by the experimental class on two units in Part II of the test, "The Character and Purposes of Contemporary Education" and "Maintenance of Peace". They do, however, show competence which is significant at the one per cent level on the unit "Organization for Production" in Part II, when compared with the experimental class. With the advantage these second term students have on economic questions one wonders why they did not excel on Part I of the examination as well.

Both of the first term special permission groups are excelled by the second termers on the units "The Organization for Production", and "The Position of Labor" which ought to be the case since they just finished class instruction on these units. The 1st term (a) group are also surpassed on items in Part I of the examination dealing with "Agriculture in Transition" and "Relationship Between Man and Government". This is interesting as the first term group had just been doing A work in the term in which the governmental unit is taught. The second term students are B students.

When compared with students having all three terms of the course the second term group shows significantly better work, at the one per cent level, on all of the units on economic questions and the one on government, which appear in Part I. On Part II, the unit on "The Position of Labor" shows highly significant differences in favor of the second term students. Differences significant at the five per cent level are also discernable on "Organization for Production" and "Position of Agriculture".

The second term students also, peculiarly enough excelled the third term students on the unit "Maintenance of the Family" in Part II. The students taking the whole Social Science course had just studied this unit and the second term students never had class consideration of it. However, 60 per cent of the second term students had the Effective Living course which spends the whole second term on marriage and family problems. But then, 53 per cent of the third term students also had the same course. The explanation of the difference, therefore, is not readily discernable.

5. 3rd Term. This group of students which had the full three terms of Social Science bettered none of the other groups with less than three terms work by any differences which stand as significant. They are excelled chiefly by the experimental class and the second term group, and mainly on material from the second and third terms of the course.

Units of the Course in which no Significant Differences Appear. The five groups of students whose achievement on the Social Science comprehensive examination is reviewed in this study showed no significant

differences (at either the one or the five per cent levels) between them on items from five units of the course in Part I of the comprehensive and items from two units of the course in Part II of the examination. These units are:

Unit Number		Part I
1	.....	Fundamentals of Social Science
3	.....	Character and Purposes of Contemporary Education
7	.....	Maintenance of the Family
8	.....	Intergroup Conflicts
9	.....	Maintenance of International Peace
		Part II
1	.....	Fundamentals of Social Science
2	.....	Relationship Between Man and Government

It is difficult to make an adequate explanation of the absence of significant differences between the groups on the above units of the course. Two things stand out, however, First, all groups seem to possess an adequate understanding of the underlying concepts of the course as covered in the first unit on fundamentals. This may be due to the fact that for all groups a higher proportion of time was spent on this than any other unit. Second, on Part I of the examination no significant differences appeared on any of the units of the third term of the course. It may be that most of the better students are grounded in the essential concepts of these units as a result of previous experience and the course does not make much of a change in them.

General Summary and Implications of the Data in this Study

Two major hypotheses were examined in this comparative study of several groups of social science students, four of which are accelerated and one which did not accelerate.

The first, and perhaps the most important, hypothesis tested in this study is: Students (selected by a social science pre-test) who participate in a one-term special class so increase their knowledge and understanding of social science that they attain significantly higher levels of achievement on the items of the comprehensive examination pertaining to the nine units of the course than each of the following groups.

(a) Students in their first year in college accelerated on the basis of grades obtained in the first term of the Social Science course.

(b) Students in their second year in college accelerated on the basis of grades obtained in the first term of the Social Science course.

(c) Students with a varying time in college accelerated by grades obtained in the first and second terms of Social Science.

(d) Students having all three terms of Social Science whose scores on the comprehensive examination are in the same range as those of the one-term special class.

The findings do not completely support the hypothesis as stated. Significant differences in achievement between the experimental class and other accelerated groups are not found on all units of the course as tested on both parts of the comprehensive examination. When compared with (a) first term, first year, special permission students no significant differences are discovered on 11 of the 18 means of unit scores (nine on each part of the examination). When compared with (b) first

term, second year special permission students no significant differences are found on 16 unit means; with (c) second term special permission students on 15 means; with (d) third term students on nine unit means.

Neither is the hypothesis disproved, for the only group which excels the experimental class on any unit of the course is the group of second term special permission students (c) and that on Unit 4, "Organization for Production" on Part II of the examination. It should be noted that no significant differences exist between the groups on this unit in Part I of the comprehensive examination. Also, the second term accelerates were selected for acceleration on the basis of instructor granted grades on this particular unit.

Significant differences are shown by the experimental class over (a) first term, first year accelerated students on seven units (four in Part I and three in Part II of the comprehensive); over (b) first term, second year accelerated students on two units in Part II of the examination; over (c) second term special permission students on two units in Part II; over (d) third term students on nine units (four on Part I and five on Part II).

It would seem, therefore, that the hypothesis is partially justified. The experimental class does not excel other groups on all units of the course, but it does on a sufficient number to give support to the practice of a one-term accelerated class of students selected by a pre-test on social science knowledge and understanding.

The implication seems to be, therefore, that a high level of competence in social science upon college entrance, plus an abbreviated,

accelerated course can bring these superior students to a level of achievement on the Social Science comprehensive which is as good, if not in many cases somewhat higher than that of students taking one, two, or three terms of the course.

Furthermore, students accelerating from regular Social Science classes on the basis of grades obtained in the course show a higher achievement than students taking all three terms of the course. The general conclusion derived from this occurance is that if acceleration by grades obtained is to be continued, the student with two terms of Social Science stands a greater chance of higher competence than if he had one term. Also, the possibility of a student accelerating from Social Science is greater if the student is in his second year in college.

The second hypothesis tested in this chapter is: Any differences discovered between the five groups of students examined under the first hypothesis cannot be attributed to differences in ability as shown by decile ranking on the American Council on Education Psychological Examination and the Cooperative Reading Test. Another factor or factors are present to account for such differences in achievement on the comprehensive examination.

The analysis of covariance was used to discount the differences between students, as shown by their decile ranks on the psychological and reading tests to see whether significant differences still existed in achievement on the various units of the course. The results substantiate the hypothesis. It is evident that differences between groups

are not accounted for by the present of significant differences on psychological and reading tests. Other factors must be taken into consideration. What these might be are examined in Chapter VI.

CHAPTER VI

THE BACKGROUND OF BASIC COLLEGE SOCIAL SCIENCE STUDENTS

This section of the study provides and analyzes data to test the hypothesis that: Significant differences exist between the groups of students in the study in such background factors as home influence, high school social science preparation, organizational activity, and reading habit and interest background.

Evidence was presented in Chapter V[1] to support the hypothesis that differences in achievement on the Social Science comprehensive examination cannot be satisfactorily explained simply because a high correlation is noted between the rankings on psychological and reading tests and grades on comprehensive examinations. When, through the statistical techniques of analysis of covariance, adjustments are made for differences in intelligence and reading ability the variations in achievement on the several sections of the social science course remained. Hence, the hypothesis examined here that other variable factors in the background of college students must account for the differences in competence in social science of college freshmen. This study purports to investigate a few factors which may seem to have a bearing upon facility in dealing with the concepts of social science by students upon college entrance.

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1. Infra., pp. 136-139.

The Methods Used

Information concerning the background of students in Basic College Social Science was obtained chiefly by the use of a questionnaire. The items used were selected by the following procedure. The students of the experimental class were first given a questionnaire, dictated orally, to determine at the start of the course what influences in their background they considered responsible for their excellent showing on the pre-test. The questions used were formed following interviews with these students previous to registration in the experimental class. The questionnaire given to all the students in the study was perfected from experience with the experimental class and suggestions from other members of the Social Science staff.

The completed background questionnaire was then obtained from 306 students in the following categories: (the abbreviated title given to each category is that used in the tables to designate each group of students:

1. Exper. Class. Twenty-eight students in the experimental class, a one-term special section of the Social Science course in which the year's course was given. All members took the comprehensive examination at the end of the Fall term, 1948.

2. 1st Term (a). Twenty-five students who took the regular first term of Social Science, and because of A grades in the course and the approval of the department were permitted to take the comprehensive examination at the end of the Fall term, 1948. The designation "(a)" is used to identify this group as freshmen in their first term in college.

3. 1st Term (b). Ten students also taking the comprehensive examination after the first term in the regular Social Science course, (Fall, 1948). The "(b)" classes them as sophomores in their fourth term in college.

4. 2nd Term (a). One hundred and one students who had two terms of the regular Social Science course and because of B grades or better in both terms, and the approval of the department, were granted permission to take the comprehensive examination at the end of the Winter Term, 1949. The "(a)" identifies these students as freshmen in their second term in college.

5. 2nd Term (b). Fifty-one students also taking the comprehensive examination after two terms of Social Science (Winter, 1949). The "(b)" identification classes them as sophomores in their fifth term in college.

6. 3rd Term. Ninety-one students having the three full regular terms of Social Science. These students entered college in the Fall, 1948 and took the comprehensive examination at the end of the Spring term, 1949.

Selection of students in these categories was made as follows: Group 1, the experimental class, included all the members of the class by pre-determined decision. Groups 2, 3, 4, 5, all "special permission" students taking the comprehensive examination before completing the course, consisted of those students returning completed questionnaires. The response was excellent, as over 90 per cent of special permission students in each category were included. Group 6, third term students,

were selected by asking each instructor teaching a first term course in the Fall term, 1948 to give the questionnaire to every tenth and twentieth student in his classes. The response brought a total of 49 questionnaires after eliminating those who later took the comprehensive by special permission. An additional 42 questionnaires were obtained by having each instructor teaching a first term course in the Fall term, 1948 give questionnaires to those students who knew they had taken the Social Science pre-test during Orientation Week. In order to determine whether or not this second group was as random a selection as the first the method of analysis of variance was used to find whether significant differences existed between the groups in intelligence, reading ability, and achievement on the comprehensive examination. There were none. The total group of 91 were therefore used in this background study.

The data obtained from the six groups of students are assembled in tables to make for more ready comparison of the differences between them. The tables are organized according to areas of influence operating upon students prior to their college experience. Interpretations of the data are made on the basis of observed differences in percentages of students from each group on the factors under consideration. On several questions where numbers of students are sufficiently large the chi-square technique is used to determine whether significant differences exist. By this means it is possible to show whether the observed frequencies for any group are so far from the theoretical frequencies that significant differences between the groups are said to exist. The actual frequencies are, of course, used. Percentages are presented in the tables to facilitate, for the reader, the making of comparisons between the groups.

Analysis of Data on Student Backgrounds

Grades received on comprehensive examinations. Inasmuch as this study purports to examine the differences which exist in the background of several groups of accelerated students and a group who did not accelerate it is important to examine, first of all, the differences between them in achievement on the Social Science comprehensive examination. Table XXI presents the data on the grades received on the comprehensive and hence for the Social Science course.

It should be noted that the first three groups are included in the previous study in which a comparative analysis is made of achievement on the nine units of the course.[1] All students in these groups took the same comprehensive examination in the Fall term, 1948. The next two groups (4 and 5) are also compared in Chapter V.[2] The students in these groups took the comprehensive at the end of the Winter term, 1949. The sixth group has not been previously considered. These are students who did not accelerate. Their method of selection for this study is described in this chapter.[3] They took the comprehensive examination in the Spring term, 1949.

The following groups, therefore, entered college in the Fall term, 1948: 1. the experimental class, 2. the first term (a) special permission students, 4. the second term (a) special permission students, and 6. the third term students. The other two groups entered a year earlier, in the Fall, 1947: 3, the first term (b) special permission

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1. Infra., pp. 118,119.
2. Infra., p. 138 (footnote)
3. Infra., p. 150,151.

students, and 5. the second term (b) special permission students.

The only group evidencing anything approaching a normal distribution of grades is obviously the third term group. The others were selected for acceleration purposes. The validity of the sampling of the group of students taking all three terms is shown when the distribution of grades for these students is compared with the total population of third term students taking the same comprehensive examination. Of 1508 students taking this comprehensive 5.2 per cent received A, 25.4 per cent B, 49.7 per cent C, 16.2 per cent D, and 3.5 per cent F.

Significant differences exist between the achievement of these six groups on the Social Science comprehensive examination. Applying the analysis of variance an "F" ratio of 16.44 is found, or substantially more than is necessary for significance at the one per cent level. The hypothesis of this study is that the groups showing significant differences on the comprehensive will also show significant differences in factors in their backgrounds which have a bearing upon competence in social science.

Age distribution. Student age distribution is given in Table XXII. The members of the experimental class are shown to be the youngest group of students with an average age of 18.8 years. The third term students (replying to the questionnaire at about the same time, Fall 1948) were about a half year older. The strangest phenomenon in this age study is the fact that the two groups of second term special permission students, though a year apart in school had exactly the same average age when they took the comprehensive examination in the Winter term, 1948.

TABLE XXI

PERCENTAGES OF STUDENTS RECEIVING DESIGNATED GRADES ON THE SOCIAL SCIENCE COMPREHENSIVE EXAMINATION

Groups	No. of Students	Grades on Comprehensive				
		A	B	C	D	F
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Exper. Class	28	43	50	7		
2. 1st Term (a)	25	24	44	32		
3. 1st Term (b)	10	40	40	10	10	
4. 2nd Term (a)	101	27	53	19	1	
5. 2nd Term (b)	51	16	53	31		
6. 3rd Term	78*	8	22	54	14	3

* Thirteen students who started Social Science in the Fall, 1948, did not finish three terms later because of failure requiring repetition of a term's work, withdrawal from college, or neglect to continue to take the successive terms in the course.

TABLE XXII

PERCENTAGES OF STUDENTS IN VARIOUS AGE GROUPS

Groups	No. of Students	Age										
		17	18	19	20	21	22	23-24	25-26	27-28	29& up	Mean Age
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1. Exper. Class	28	14	64		7	4		4	7			18.8
2. 1st Term (a)	25	8	24	12	16	16	4	8		8	4	19.1
3. 1st Term (b)	10			30	10	20	20	10	10			21.2
4. 2nd Term (a)	101	3	27	20	13	12	5	4	8	3	5	20.6
5. 2nd Term (b)	51		10	33	19	10	10	14		2	2	20.6
6. 3rd Term	91	7	43	14	18	10	1	3		2	2	19.4

Men, women, married students, veterans. In Table XXIII the percentages of men and women students in each group is given. It is noted that the experimental class is evenly divided between the sexes while most other groups show a decided disparity. If the students in all the groups are totaled the resulting distribution is 74 per cent men and 26 per cent women, exactly the same as the third term group and approximately the proportion between the sexes in the total college population.

The percentages of married students and veterans is also shown in Table XXIII. An interesting fact is that approximately half of groups 2 and 4 are veterans (56 and 43 per cent respectively) while the members of the experimental class, who entered college the same term, number only 18 per cent veterans. Does this have any bearing upon the composition of these three groups? It may be that since the experimental class was chosen by a pre-test that recency of high school experience may have given the members of the class an advantage over those who had been out of school and in the armed services. Not only acquaintance with subject matter but facility in test taking may have given them an advantage over students of equal ability who had lost some of their familiarity with school techniques.

Deciles on psychological and reading tests. Tables XXIV and XXV give the results of the psychological and reading entrance tests for the groups in this study. The deciles are combined into groups of two for the purpose of facilitating tabulation. An examination of the average deciles shows a wide variation between the groups. Group 4,

TABLE XXIII

PERCENTAGES OF MEN, WOMEN, MARRIED STUDENTS AND VETERANS

Groups	No. of Students	Men	Women	Married	Veterans
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	28	50	50	4	18
2. 1st Term (a)	25	88	12	20	56
3. 1st Term (b)	10	60	40	10	50
4. 2nd Term (a)	101	84	16	18	43
5. 2nd Term (b)	51	73	27	6	29
6. 3rd Term	91	74	26	7	30

second term special permission students in their first year in college, rank highest on the psychological test. Group 1, the experimental class, ranks highest on the reading test. Groups 5 and 6, the second term special permission students in their second year in college and the third term students, rank lowest in ability on both tests. Also noted is the much higher proportion of students in the 9-10 deciles of groups 1 and 2 on the reading test than on the psychological test.

The average deciles of 6.0, on the psychological test, and 5.7 on the reading test for the third term group is quite probably near that for the total population of third term Social Science students. The averages for 1948-49 are not available but those for the school-year 1947-48 give 5.42 and 5.36 as the average deciles for the psychological and reading tests respectively of third term students.

In Chapter V an analysis of the differences between groups 1, 2, 3 is made.[1] It is there shown that 1 and 2 do not differ significantly

1. Infra., pp. 122-136.

on any part of the psychological or reading tests. Groups 1 and 3 show significant differences at the one per cent level of significance on the reading test only. A comparison of groups 2 and 3 shows 2 to be significantly superior to 3 at the five per cent level.

In connection with these differences on the psychological and reading tests we may well review the observed differences between these groups on achievement on the comprehensive examination. Chapter V also analyzes these differences.[1] Group 1, the experimental class, is shown to be significantly superior to group 2, the first term special permission students in their first year in college, on four of the units of the course covered in Part I of the comprehensive and three units of the course as covered in Part II. It is obvious, therefore, that these differences in achievement are not due to differences in intelligence and reading ability for none were shown. Furthermore, as is pointed out in Chapter V, differences in intelligence and reading ability do not explain differences on the comprehensive examination.[2] After equalizing the groups on psychological and reading decile ranking through the use of the analysis of covariance, the differences on the examination remained. Thus the hypothesis is supported that other factors, such as differences in background, account for differences on the comprehensive examination.

Another observation on Tables XXIV and XXV concerns the two groups of second term students (4 and 5).[3] These students accelerated from

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1. Infra., pp. 136-143.
2. Infra., pp. 122-136.
3. Infra., p. 138 (footnote)

the same second term Social Science classes in Winter term, 1949. Group 5 had been in college a year longer than group 4. The psychological and reading averages of group 4 are almost two deciles higher then group 5. And yet, an analysis of the comprehensive examination by units of the course shows comparatively little difference between them. The first year group (4) displayed differences which are significant at the five per cent level on two units of the course on Part I of the examination--"Relationship Between Man and Government", and "Organization for Production"; in Part II on one unit, "Organization for Production", but at the one per cent level of significance.

What explanation can be given for this phenomenon? One might suggest that group 5 is a year older and hence more mature. However, if Table XXII is examined the strange fact is discovered that the two groups have exactly the same average age, 20.6 years. The only hypothesis that appears tenable is that in the Winter term, 1949, the differences between both groups were not as great as psychological and reading deciles would indicate. It must be remembered that these ability tests were taken a year apart. A year in college had brought the two groups closer together than the test deciles show.[1] It is also likely

1. Several studies show that students increase their scores on psychological tests as they progress through college. See, Hunter, E. C. "Changes in Scores of College Students on the American Council Psychological Examination at Yearly Intervals During the College Course", Journal of Educational Research, Vol. 36 (April 1943), pp. 284-91. According to Hunter's study, "freshmen gained 23 percentile points in one year, sophomores gained 24 percentile points in two years, juniors gained 26 percentile points in three years, and seniors gained 31 percentile points in four college years. Apparently, the greatest amount of intellectual growth manifested during the college years actually took place during the first year in college. Approximately 75 per cent of the four year gain occurred during the first year."

that the second year students had acquired a sufficiently broader background from a year of college experience (class and out of class) than they possessed upon college entrance to place them almost on a par with their superior classmates in their first year in college.[1]

TABLE XXIV

PERCENTAGES OF STUDENTS IN PAIRS OF DECILE RANKINGS ON THE AMERICAN COUNCIL PSYCHOLOGICAL TEST

Groups	No. of Students	Decile Rank					
		1-2	3-4	5-6	7-8	9-10	Mean
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Exper. Class	28	4	7	21	25	43	7.6
2. 1st Term (a)	25	8	4	24	24	40	7.4
3. 1st Term (b)	10		10	30	20	30	7.1
4. 2nd Term (a)	101		8	13	25	54	8.1
5. 2nd Term (b)	51	2	24	27	27	20	6.0
6. 3rd Term	91	12	19	21	30	18	6.0

TABLE XXV

PERCENTAGES OF STUDENTS IN PAIRS OF DECILE RANKINGS ON THE COOPERATIVE READING TEST

Groups	No. of Students	Decile Rank					
		1-2	3-4	5-6	7-8	9-10	Mean
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Exper. Class	28			4	25	71	9.1
2. 1st Term (a)	25		8	4	20	58	8.6
3. 1st Term (b)	10		20	10	30	30	6.9
4. 2nd Term (a)	101	1	5	12	32	50	8.2
5. 2nd Term (b)	51	2	22	35	9	22	6.0
6. 3rd Term	91	15	22	20	21	22	5.7

1. Increase in a student's background in social science after a year in school without taking the Social Science course was shown by the Michigan State College Board of Examiners study which revealed that between a pre-test at the beginning of the freshman year and a post-test at the end students had a gain of 9.6 per cent on a Social Science test without having taken the course. Infra., p. 86-92.

Home background. The population of the home towns from which students in the several groups come is presented in Table XXVI. It appears that size of home town cannot be a factor in accounting for variation in achievement in social science between accelerated groups and those who do not accelerate.

A few things should be noted concerning this population data. Students from farms apparently gave their home town population as that of the town near which they resided for only four stated that they came from the open country. It is perhaps well that such is the case since the influence of an urbanized area upon an adjacent rural community obviously affects the culture of the rural community. Thus the population rank of the near-by urban community is a better indication of background of the students than if they had classified themselves as rural.

An interesting side-light is that the average student, in this study, comes from a city of between 15,000 to 49,999 population (col. 7). Slightly over 18 per cent come from places with less than 2,500 population while more than a third are from cities with 100,000 or more. About 16 per cent come from cities with over a million population (chiefly Detroit). Those included, roughly, in one standard deviation above and below the mean come from cities between 2,500 and 999,000. The practical upper limit here is around 250,000 as that is the approximate population of the largest city in Michigan outside Detroit.

Tables XXVII and XXVIII gives the number of children in the families from which students in the six groups come and also the age position which such students have to the siblings in their families.

TABLE XCVI

PERCENTAGES OF STUDENTS WHOSE HOME TOWNS FALL IN CERTAIN POPULATION CLASSIFICATIONS

Groups	No. of Students	Population of Home Town							
		Rural-999	1,000-2,499	2,500-4,999	5,000-14,000	15,000-49,999	50,000-99,999	100,000-999,999	1,000,000-over
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. Exper. Class	28	11	11		14	18	14	25	7
2. 1st Term (a)	25	8	8	12	20	4	12	16	20
3. 1st Term (b)	10	10	20		20		10	30	10
4. 2nd Term (a)	101	7	8	4	19	15	11	19	17
5. 2nd Term (b)	51	10	14	8	16	19	6	8	19
6. 3rd Term	91	5	12	9	14	10	12	22	16

The reason for including this data is to test the hypothesis that number of children and place in the family has a bearing upon competence in social science. The feeling is that students who are only children or who come from small families have better advantages than others in the home and hence may be more likely to appear in the accelerated groups. The evidence presented here discounts this hypothesis as little difference is shown in the average size of families of students in the six groups.

The tables reveal that the average student in this study comes from families of between three and four children, although those in the experimental class average slightly below three. As to position in the family the average student is the second child, although those in the experimental class average below that number, due, largely to a higher percentage of only children than any other group (except group 3, which has only ten students).

TABLE XXVII

PERCENTAGES OF STUDENTS WHO COME FROM FAMILIES HAVING THE DESIGNATED NUMBER OF CHILDREN

Groups	No. of Students	Number of Children in Family											
		1	2	3	4	5	6	7	8	9	10	11	Mean
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1. Expor. Class	28	28	32	14	7	4	4	4	4		4		2.9
2. 1st Term (a)	24	4	25	25	13	4	4						3.5
3. 1st Term (b)	10	30	20	10		20		10				10	3.8
4. 2nd Term (a)	100	15	30	24	14	7	3	3	1	1		2	3.2
5. 2nd Term (b)	51	12	33	19	14	10	10	2					3.1
6. 3rd Term	88	15	33	21	13	7	6	1	2	2			3.1

TABLE XXVIII

PERCENTAGES OF STUDENTS WHO HAVE THE DESIGNATED POSITION, AS TO AGE, AMONG THE CHILDREN IN THEIR FAMILIES

Groups	No. of Students	Position in the family									
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	Mean
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1. Expor. Class	28	58	21	21							1.6
2. 1st Term (a)	24	50	13	25	8	4					2.0
3. 1st Term (b)	25	40	30		10	10	10				2.5
4. 2nd Term (a)	97	45	22	16	7	4	1	3	1	1	2.3
5. 2nd Term (b)	51	37	31	20	6	2	2	2			2.2
6. 3rd Term	88	50	19	11	11	6	2		1		2.2

An examination of the educational background of the parents shows no significant differences between the groups of students in this study. The chi-square technique was used to determine whether significant differences existed between the observed and the theoretical number of parents having the stated amount of educational attainment. Table XXIX on the fathers' education gave a chi-square of 7.95 and Table XXX on the mothers' education resulted in a chi-square of 8.73, both far below the five per cent level of significance.

The percentages of students whose fathers follow certain categories of occupations are given in Table XXXI. The categories are grouped so that a sufficient number may be included in each cell to validly apply the chi-square technique. Using this statistical tool it was found that the accepted statistical levels of significance at either the five or the one per cent level was not in evidence on the data in this table. A chi-square of 20.76 resulted. It should be noted, however, that this is significant at about the ten per cent level, which may show that

TABLE XXIX

PERCENTAGES OF STUDENTS WHOSE FATHERS HAVE THE DESIGNATED EDUCATIONAL ATTAINMENT

Groups	No. of Students	Amount of Education		
		11th Grade or Less	High School Graduate	College - one year or more
(1)	(2)	(3)	(4)	(5)
1. Exper. Class	27	33	22	45
2,3.1st Term (a,b)*	30	30	27	43
4. 2nd Term (a)	91	34	23	43
5. 2nd Term (b)	46	33	30	37
6. 3rd Term	82	47	26	27

* Groups 2 and 3 are combined to make a sufficient number in each classification to use the chi-square technique in establishing significance.

TABLE XXX

PERCENTAGES OF STUDENTS WHOSE MOTHERS HAVE THE DESIGNATED EDUCATIONAL ATTAINMENT

Groups	No. of Students	Amount of Education		
		11th Grade or Less	High School Graduate	College - one year or more
(1)	(2)	(3)	(4)	(5)
1. Exper. Class	28	36	36	28
2,3.1st Term (a,b)*	31	39	22	39
4. 2nd Term (a)	97	39	30	31
5. 2nd Term (b)	48	29	38	33
6. 3rd Term	85	33	45	22

* Groups 2 and 3 are combined to make a sufficient number in each classification to use the chi-square technique in establishing significance.

fathers' occupation does have some bearing on students' competence in social science. The chances are 90 out of 100 that it does.

The occupations included in the listed categories are as follows: Professional, seventy per cent were in education or engineering but also medicine, law, the clergy; Proprietor, owners of retail, wholesale, manufacturing, and contracting firms; Manager, high executive positions in business corporations; Supervisory, foremen, inspectors, plant superintendents; Clerical, accounting, other responsible office work, sales such as insurance, etc.; Farmer, is obvious; Labor, skilled, semi-skilled, and unskilled.

Greatest differences between the groups are noted between group 1, the experimental class, and group 6, the third term students, with group 5, the second term special permission students in their second year in college, ranking fairly close to group 6. While 70 per cent of the fathers of students in the experimental class are in professional, proprietorial, or managerial vocations, only 26 per cent of the fathers of third term students follow such occupations and 35 per cent of group 5. On the other hand, 15 per cent of the fathers of those in the first group are farmers or laborers while 41 per cent of group 6 and 38 per cent of group 5 are in this category. It is interesting to note here that farmers make up only 11 per cent of the total number of fathers included in the study, ranging from 7 per cent of students in the experimental class to 19 per cent in group 5. Of the laborers the largest percentage are skilled workers, consisting of 15 per cent of the total

number of fathers, and making up 7 per cent of the fathers in group 1 and 22 per cent in group 6.

The evidence seems definitely to point in the direction that students from homes where the fathers are in professional, proprietorial, or managerial work, show a greater facility for handling ideas and information concerned with the social science field.

TABLE XXXI

PERCENTAGES OF STUDENTS WHOSE FATHER'S OCCUPATIONS FALLS IN THE DESIGNATED OCCUPATIONS

Groups	No. of Students	Occupational Classification			
		Professional	Proprietor Manager	Supervisory Clerical	Farmer Labor
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	26	35	35	15	15
2,3.1st Term (a,b)*	29	24	28	20	28
4. 2nd Term (a)	89	21	21	28	29
5. 2nd Term (b)	45	13	22	27	38
6. 3rd Term	81	10	16	33	41

* Groups 2 and 3 are combined to make a sufficient number in each classification to use the chi-square technique in establishing significance.

The percentage of mothers who work outside the home (Table XXXII) is very probably in direct relation to the economic and social status of the family. Through comparison with Table XXXI it is noted that those groups of students whose fathers' occupations are heavily centered in professional, managerial, and proprietorial activities show a small percentage of mothers who have an occupation outside of the home and vice versa. Thus the connection seems to be a close one between ability

in dealing with the concepts of social science and the socio-economic status of the family as evidenced by the occupation of the father and the necessity of employment by the mother.

TABLE XXXII

PERCENTAGES OF STUDENTS WHOSE MOTHERS HAVE OCCUPATIONS OUTSIDE OF THE HOME

Groups	No. of Students	Mothers have Occupation
(1)	(2)	(3)
1. Exper. Class	27	8
2. 1st Term (a)	23	0
3. 1st Term (b)	9	33
4. 2nd Term (a)	97	22
5. 2nd Term (b)	49	23
6. 3rd Term	86	22

Tables XXXIII to XXXVII inclusive set forth the data on the number of organizations belonged to by fathers and mothers. The reason for including the organizational activity of parents in this study is to test the hypothesis that students coming from families which participate heavily in organizational affairs show a greater familiarity with the social science field. Students were asked on the questionnaire to state the organizations to which their fathers and mothers belonged. Where no response was made the assumption was that the particular parent belong to no organization though it is altogether likely many students did not recall the names of their parents' organizations or whether they belonged to any at all. Also the exact number may not be too reliable. In tabulating the responses the organizations were classified

as social, social welfare, and vocational. Social organizations included lodges, recreational groups such as bridge clubs, and service organizations such as Kiwanis. Social welfare organizations included Parent-Teacher Associations, Chambers of Commerce, Church organizations, political boards and commissions. Vocational organizations were such as professional and business organizations, labor unions, farmers organizations.

Little difference is found between the groups in each of the tables. In Table XXXIII the means of the groups fall slightly below and within Column (4) on membership in one organization. In Tables XXXIV and XXXV the means all fall in Column (3) which designates membership in no social welfare or vocational organization. In examining Table XXXIII on fathers' membership in social organizations it is noted that the widest differences in percentages are found in Column 6 listing those who belong to three or more organizations. Groups 1, 2 and 3 show a much higher proportion of membership in this number of organizations than do groups 4, 5 and 6. What value this may have in understanding differences in competence in social science is difficult to determine. The experimental class is low as well as the second term first year special permission students. Both groups ranked higher on the comprehensive examination than the second term, second year students, and the third term students (groups 5, 6). It cannot, therefore be said that the hypothesis is substantiated.

TABLE XXXIII

PERCENTAGES OF STUDENTS WHOSE FATHERS BELONG TO THE DESIGNATED NUMBER OF SOCIAL ORGANIZATIONS

Groups	No. of Students	Number of Social Organizations			
		None	One	Two	Three
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	28	39	32	18	11
2. 1st Term (a)	25	32	28	12	28
3. 1st Term (b)	10	30	10	10	50
4. 2nd Term (a)	101	61	25	8	6
5. 2nd Term (b)	51	53	29	14	4
6. 3rd Term	91	42	42	10	6

TABLE XXXIV

PERCENTAGES OF STUDENTS WHOSE FATHERS BELONG TO THE DESIGNATED NUMBER OF SOCIAL WELFARE ORGANIZATIONS

Groups	No. of Students	Number of Social Welfare Organizations			
		None	One	Two	Three
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	28	71	21	4	4
2. 1st Term (a)	25	92	8		
3. 1st Term (b)	10	100			
4. 2nd Term (a)	101	81	12	5	2
5. 2nd Term (b)	51	80	10	10	
6. 3rd Term	91	79	18	2	1

TABLE XXXV

PERCENTAGES OF STUDENTS WHOSE FATHERS BELONG TO THE DESIGNATED NUMBER OF VOCATIONAL ORGANIZATIONS

Groups	No. of Students	Number of Vocational Organizations			
		None	One	Two	Three
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	28	64	21	11	4
2. 1st Term (a)	25	76	12	8	4
3. 1st Term (b)	10	80	10	10	
4. 2nd Term (a)	101	79	14	6	1
5. 2nd Term (b)	51	71	25	4	
6. 3rd Term	91	79	19	2	

TABLE XXXVI

PERCENTAGES OF STUDENTS WHOSE MOTHERS BELONG TO THE DESIGNATED NUMBER OF SOCIAL ORGANIZATIONS

Groups	No. of Studonts	Number of Social Organizations			
		None	One	Two	Three
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	28	68	21	4	7
2. 1st Term (a)	25	60	28	4	8
3. 1st Term (b)	10	90		10	
4. 2nd Term (a)	101	75	13	9	3
5. 2nd Term (b)	91	64	26	9	1

TABLE XXXVII

PERCENTAGES OF STUDENTS WHOSE MOTHERS BELONG TO THE DESIGNATED NUMBER OF SOCIAL WELFARE ORGANIZATIONS

Groups	No. of Students	Number of Social Welfare Organizations			
		None	One	Two	Three
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	28	50	18	25	7
2. 1st Term (a)	25	60	20	16	4
3. 1st Term (b)	10	60	10	10	20
4. 2nd Term (a)	101	55	26	14	5
5. 2nd Term (b)	51	43	20	29	8
6. 3rd Term	91	62	21	15	2

Table XXXVIII gives data on the frequency of church attendance. An examination of the title shows no essential differences between the groups. The question was asked to test the hypothesis that those most regular in church attendance have a greater interest and insight into social problems than those who do not. This study rejects the hypothesis. Perhaps a better question would have sought to determine the number of students who participate in youth groups which discuss the application to religious principles to economic, political, and social problems. Much of the church attendance by students may be from habit or for personal reasons, religious or otherwise, which have no social application.

Do students who show greater competence in social science come from homes in which they frequently participate in discussions of political, economic, and social questions? Do they more often discuss such questions with friends? An hypothesis supporting the belief that they do was the

TABLE XXXVIII

PERCENTAGES OF STUDENTS WHO ATTEND CHURCH AT VARYING DEGREES OF FREQUENCY

Groups	No. of Students	Frequency			
		Regularly	Occasionally	Seldom	Never
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	24	42	42	12	4
2. 1st Term (a)	24	33	47	12	8
3. 1st Term (b)	10	50	20	20	10
4. 2nd Term (a)	101	41	29	24	6
5. 2nd Term (b)	51	35	37	20	8
6. 3rd Term	91	48	33	16	3

basis for inclusion in the questionnaire of a question to test its validity. If the father's occupation and the resulting socio-economic status is an important factor in producing student differences in the understanding of the field of social science is it not exercised through participation in questions of social significance in the home?

Tables XXXIX and XL give the percentages of students responding to the question asking for the frequency with which they discuss questions pertaining to social science at home and with friends. In both tables no substantial differences are found between the groups. In all cases the mean falls in column (4) "Some".

An additional question on this topic was asked: "To what extent do you think such family and friendship influences have helped you to a better understanding of social science?" Space was left for free response answers. The judgment of the tabulator was the deciding factor

TABLE XXXIX

PERCENTAGES OF STUDENTS WHO DISCUSS POLITICAL, ECONOMIC, AND SOCIAL QUESTIONS AT HOME WITH VARYING DEGREES OF FREQUENCY

Groups	No. of Students	Frequency			
		Often	Some	Rarely	Never
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	28	50	43	7	
2. 1st Term (a)	25	32	60	8	
3. 1st Term (b)	10	30	60	10	
4. 2nd Term (a)	100	43	44	12	1
5. 2nd Term (b)	51	33	49	18	
6. 3rd Term	89	42	46	9	3

TABLE XL

PERCENTAGES OF STUDENTS WHO DISCUSS POLITICAL, ECONOMIC, AND SOCIAL QUESTIONS WITH FRIENDS WITH VARYING DEGREES OF FREQUENCY

Groups	No. of Students	Frequency			
		Often	Some	Rarely	Never
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	28	32	64	4	
2. 1st Term (a)	24	29	67	4	
3. 1st Term (b)	10	20	60	20	
4. 2nd Term (a)	101	47	45	7	1
5. 2nd Term (b)	51	41	51	8	
6. 3rd Term	90	34	59	6	1

as to whether the responses could justifiably be included under the categories of Table XLI. These categories ranged from "very helpful", down through "good help", "some help", "little help", to "no help". The means of the group show little variation. All fall either in Column 4 "Good Help" or close to it high in Column 5 "Some Help". The conclusion from this study is, therefore, that significant influences do not exist between the groups of students concerning the influence of family and friends upon the understanding of social science. More correctly, significant differences do not exist in regard to what students <u>think</u> these influences are.

TABLE XLI

PERCENTAGES OF STUDENTS WHO EXPRESS THE DEGREE OF HELP WHICH FAMILY AND FRIENDSHIP INFLUENCES HAVE CONTRIBUTED TO A BETTER UNDERSTANDING OF SOCIAL SCIENCE

Groups	No. of Students	Amount of Help				
		Very Helpful	Good Help	Some Help	Little Help	No Help
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Expor. Class	25	48	12	16	20	4
2. 1st Term (a)	19	47	16	21	16	
3. 1st Term (b)	9	56	11	22	11	
4. 2nd Term (a)	95	31	31	18	16	4
5. 2nd Term (b)	34	44	47	6	3	
6. 3rd Term	77	31	27	21	17	4

The necessity for further study on the question of home influence is evident. Perhaps an investigation using the interview technique and greatly improved questions would be desirable. A review of some of the responses made by students does not give statistical proof but it points to qualitative differences in home backgrounds which may help to give a few clues for further research. At least the statements throw some interesting side-lights on student feelings regarding the influence of home and friends.

First of all, some statements from members of the experimental class:

"My family and friendship influences have been of the most help. It is because of my family that I am interested in Social Science. Family discussion lead me to read current magazines and follow the newspapers so I wouldn't be left out of the conversation."

"At home we discuss labor situations a great deal, and through living I have learned the terms and problems. My interest and curiosity have been aroused so that I investigate further. Through discussions I have learned to respect others' opinions and weed out facts from opinion."

"My father and I love to argue and talk about current events. His job places him in a position where he is exposed to the world affairs and so often we discussed things we both had heard or read (Dad says it's simply because I'm contrary)."

"My youth was spent mainly on the farm of my uncle who has always been very much interested in the problems of farmers and laborers in relationship to the problems of consumers of farm products and factory products. He always listened to all the radio news broadcasts and I suppose this is probably the reason for my own interest in the same programs. Reading papers other than the daily news sheets was another source of my uncle's information and since there was usually little other reading material readily available to me, I began to read these papers myself. Thus I acquired at least a small background of the views of many of the reports in the field of agriculture and labor."

All replies were not favorable to home influence. Two follow from members of the experimental class:

"I don't think these influences have been too greatly helpful, however, they may help me more than I realize."

"None, as far as I can see. High School topics of conversation seldom touched on the subject ..... Our family never discussed current problems at any length."

Several statements follow from second term accelerated students, the first two are in their first year in college, the others in their fifth term:

From a girl whose father is a mechanic: "More than anything else. My interest in anything pertaining to politics, economics, or social problems was first aroused by my father. Anything of that nature that I do not understand or am especially interested in I discuss with him."

"Family discussions stimulated my interest, giving me the desire to study and evaluate information concerning the social sciences."

"My parents have separated and this has brought home the problems of marriage, personality adjustment, and the like. In a family of this size (4 children) you can't help but learn of the problems facing you and others."

"I think it has given me a general picture of what other people think. Thus I know why people are prejudiced, the ways in which people differ in their opinions of political and economic questions, and how certain problems affect people. For example, through discussions, I understand how people feel about strikes and how the strike affects them."

Three responses from third term students do not give home influence any credit for the understanding of social science:

"I do not believe they have helped me very much. Such discussion is usually prejudiced and I do not get a true picture."

"Not too much. That is, my father has a racial prejudice; he has influenced me to become the same way."

"They have not particularly helped me to a better understanding, we always argue, never convince the other person of our points, and therefore never come to any conclusion."

It appears that quality of home background is the most important factor influencing the student in matters pertaining to social science.

High school background. Perhaps the most important minor hypothesis in this study of student backgrounds is that a direct relation exists between competence in Basic College Social Science and those high school experiences having a bearing upon the understanding of social science.

Size of high school attended is a variable that may have a bearing upon social science background. Larger schools are likely to have more social science courses, better teachers, libraries, equipment, extra-curricular activities such as clubs which yield experiences valuable to social science understanding. Therefore superior students are more likely to come from the larger schools.

To test this hypothesis students were asked to give the size of their senior classes. Table XLII presents the data on the percentages from each group whose classes were included in certain ranges of senior class size. An examination of the means shows all except the experimental class to fall in column 7 "100-199", which comes just over the line in column 8 "200-299". Thus, size of senior class and hence size of high school cannot be a factor accounting for group differences in achievement in Basic College Social Science.

Table XLIII gives the percentages of students who took particular social studies courses in high school. One of the most strongly held

TABLE XLII

PERCENTAGES OF STUDENTS WHOSE SENIOR CLASSES IN HIGH SCHOOL CONSISTED OF THE DESIGNATED NUMBER OF PERSONS

Groups	No. of Students	Size of Senior Class								
		1-24	25-49	50-74	75-99	100-199	200-299	300-399	400-599	600-up
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. Exper. Class	27	7	19		7	11	19	15	19	3
2. 1st Term (a)	24	4	4	13	25	13	8	13	16	4
3. 1st Term (b)	10	20	10	20	10	20			20	
4. 2nd Term (a)	100	2	9	12	4	21	18	12	16	6
5. 2nd Term (b)	50	4	18	4	10	16	16	14	10	8
6. 3rd Term	91	2	12	11	10	21	14	10	9	11

hypotheses on this subject is that ability in Basic College Social Science is directly related to the nature of social studies work taken in high school. This investigation, comparing achievement of groups of accelerated students and including a non-accelerated group, finds no significant differences between the groups in regard to high school courses. A chi-square of 7.85 was discovered for the table as a whole, which is not large enough to show significance. As far as this study is concerned, the hypothesis is rejected.

An interesting phenomenon should be pointed out, however. Grouped under "Other Social Studies" (column 7) are such courses as Sociology, Ancient History, Latin American History, World Relations, Civics (which may have included economics, government, sociology). These could not be listed in separate columns as the frequencies for each course for each group was not large enough to provide valid use of the chi-square. Nevertheless, Sociology and Ancient History were listed separately (columns 8, 9) for comparative purposes. Sociology in particular shows wide differences between the experimental class and other groups. With a third of group 1 having high school sociology the students in that group may have been in a much more favorable position for Basic College Social Science than members of other groups.

Though the specific courses taken by students in high school may be the same for the superior as well as the ordinary student the question remains as to whether superior students do not derive a better background from such courses. Quite obviously, they do. The problem is to determine a little more accurately what the relationship is.

TABLE XLIII

PERCENTAGES OF STUDENTS WHO HAD CERTAIN HIGH SCHOOL COURSES IN THE SOCIAL SCIENCES

Groups	No. of Students	High School Courses						
		Econ-omics	Amer. Gov't	Mod. Hist.	U. S. Hist.	Other Soc.St.	Soci-ology*	Anc. Hist.*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1. Exper. Class	28	46	86	82	79	64	32	14
2. 1st Term (a)	25	56	76	60	88	44		20
3. 1st Term (b)	10	50	50	80	80	60		30
4. 2nd Term (a)	101	51	83	54	82	48	6	22
5. 2nd Term (b)	51	43	71	65	80	65	4	20
6. 3rd Term	91	51	77	59	82	48	10	13

* The frequencies listed under "Sociology" and "Ancient History" are included in "Other Social Studies" for the purpose of obtaining sufficient frequencies to use the chi-square technique to determine whether significant differences exist between the groups of students.

One method is to obtain from students their attitudes toward the value of high school social studies courses to Basic College Social Science. Student responses to such a question were analyzed by the amount of value each writer seemed to give to his high school work. The tabulator set up the following degrees of value: good, some, little, none. The percentages of students in each group which fell into each grade are given in Table XLIV. A higher combined percentage of the members of groups 1 and 2 thought the value of high school cources was "good" and of "some" value than did those in the remaining groups. This may be indicative of actual differences in the value of such background but it does not appear to be great enough to be conclusive.

Some of the comments made on this question are perhaps more revealing than the statistics on them. A large number of students seem

TABLE XLIV

PERCENTAGES OF STUDENTS EXPRESSING VARYING DEGREES OF BELIEF THAT HIGH SCHOOL SOCIAL STUDIES COURSES ARE OF VALUE IN GIVING AN UNDERSTANDING OF BASIC COLLEGE SOCIAL SCIENCE

Groups	No. of Students	Amount of Value			
		Good	Some	Little	None
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	25	64	36		
2. 1st Term (a)	19	79	16		5
3. 1st Term (b)	10	60	10	30	
4. 2nd Term (a)	93	60	20	12	8
5. 2nd Term (b)	44	52	36	7	5
6. 3rd Term	82	45	33	15	7

to feel that the Basic College Social Science course is a repetition of high school work. This attitude is, of course, to be expected from groups of accelerated students. Their excellent high school background has helped them attain some of the objectives which the Basic College Social Science course expects upon completion of that course. It should also be noted that many haphazard students object to repetition of subject matter in which they never have nor will attain a very high competence. Some typical comments are:

"I covered in high school most of the things I am having in Social Science right now."

"Very helpful. Almost everything covered in (the first and second terms) I had in economics and government."

"The course in U. S. Government covered in more detail everything in the second part of (the first term's work). In U. S. History the teacher went into business structures and topics related to part one of (term two)."

"Sociology in high school was very helpful to me because some of our present assigned reading has been material that was covered in high school social science."

"Government was especially helpful because the teacher was good and encouraged discussion of past and present affairs. Sociology helped because of the text but the teacher was no help...."

"I learned about past civilizations and about the founding of our present economic, political and social systems."

"Modern History and U. S. History helped some but I think it was more the teacher and how she taught than the subject. She had traveled a good deal and knew what she was talking about. The family living class has helped substantially in the unit on the family."

"I had an excellent history and government teacher in high school. He encouraged us to argue with him and express our viewpoints and our ways of arriving at various conclusions."

"In my opinion I had one of the best Economics teachers there is. He certainly gave me a thorough understanding of each of the processes in economics."

Several items on the background questionnaire inquired about pre-college participation in organizations, high school extra-curricular activities, church attendance and work experience. Also requested was a statement from each student giving his attitude toward the value which such activities had in helping him increase his understanding of the general social science field. The results are presented in Table XLV. Upon examination of the table one finds that 70 per cent of the 10 students in group 3 give statements which can be interpreted to mean that they consider their out of school activities were of "good" or "some" value in promoting social science understanding. However, 23 per cent of group 5, 35 per cent of group 6, and 45 per cent of group 6 give responses which may be included in the same categories. There seems to be no pattern from which any satisfactory conclusions can be drawn.

TABLE XLV

PERCENTAGES OF STUDENTS EXPRESSING VARYING DEGREES OF BELIEF THAT HIGH SCHOOL EXTRA-CURRICULAR ACTIVITIES, CHURCH ATTENDANCE, AND WORK EXPERIENCE ARE OF VALUE IN GIVING A BETTER UNDERSTANDING OF SOCIAL SCIENCE

Groups	No. of Students	Amount of Value			
		Good	Some	Little	None
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	20	15	30	15	40
2. 1st Term (a)	25	24	24	8	44
3. 1st Term (b)	10	40	30	10	20
4. 2nd Term (a)	100	32	25	60	37
5. 2nd Term (b)	48	15	8	15	62
6. 3rd Term	90	12	23	19	46

Because little relationship exists between a realization of the value of out-of-school activities and inclusion in groups of superior social science students it does not follow that such activities are of no value to individual students in giving them a background which is helpful in a better understanding of the social science field. Some students seem to be quite conscious of close ties between various types of activities and their increased understanding of the world of human relations. A few comments from the questionnaires are of interest.

"My association with groups has helped me understand human relationships. My term of employment with the paper mill broadened my knowledge of employer-union activities and relationships."

"The time I spent in the army certainly broadened my knowledge of regional social differences and people. The short time I have worked has given me a better view of the laborer so that I can better understand the labor-management problem."

"Extensive travel (in Europe and U. S.) while in service aided me in understanding problems of different social groups. Practical experience in personnel administration put me in touch with individuals and their problems."

"The church has probably given more help than other due to the fact that it does present social problems to the people."

"We talked about democracy a great deal in Youth Fellowship."

"My church attendance has probably been the biggest help."

"In the course of my employment with the airline I travelled through 23 countries and had occasion to acquaint myself with the peculiarities of each. Also, the conversations I had with people of all walks of life who have been fellow passengers on those flights have proven of immeasurable value in the formation of many of my opinions on the topics current to our civilization.

"Also, as a supervisor with this company, I received extensive training in labor relations and managerial relations from the industrial relations department. I believe these courses of training have been of benefit to me."

"Public speaking helped me in that we covered many important issues of the time. We held round-table discussions and spoke separately on social conditions and economic problems. Work on the high school paper, athletics, and my college organizations have helped me understand people more freely and to appreciate each individual's contribution to society."

"Working in a factory helped me to understand the way of life of the working class. I worked with negro workers and saw how they got along with the whites. I joined a "workman's group" and talked about politics, wages and the union that was organizing there. The plant was just getting started then and I could watch how production was sped up and maintained. I observed many things that brought about justifiable grievances on the part of both labor and management."

Reading habits and news interests. The purpose of this part of the investigation of student backgrounds is to test the hypothesis that the interest and competence of students in social science has a direct relation to their reading habits and interest in topics of the news having a bearing on the social science field.

The questionnaire asked students to specify the newspapers they read. Home town weeklies were ruled out and large city dailies were

tabulated by the number normally read by each student. Table XLVI shows the results.

Another question inquired concerning magazines usually read. These were separated into three types by the tabulator--news magazines, popular magazines, and vocational journals. The latter were so few that no table was made. The former two are presented in Tables XLVII and XLVIII. An examination of the means of the group shows no great variation between any of the groups on the number of newspapers and magazines read.

Other inquiries on reading habits might be more fruitful, e.g., on the amount of time spent on articles (in newspapers and magazines) concerning matters of social, economic, and political importance as over and against sports, scandals, and comics. Still more indicative, but difficult to determine, would be the thoroughness, discrimination, and understanding with which articles pertaining to modern social problems are read.

TABLE XLVI

PERCENTAGES OF STUDENTS READING THE DESIGNATED NUMBER OF DAILY NEWSPAPERS

Groups	No. of Students	Number of Newspapers Read					
		None	One	Two	Three	Four	Five or More
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Expor. Class	28	7	43	29	21		
2. 1st Term (a)	25	4	32	44	16	4	
3. 1st Term (b)	10		20	40	30	10	
4. 2nd Term (a)	101	7	28	37	14	13	1
5. 2nd Term (b)	51	8	31	26	25	6	4
6. 3rd Term	91	4	18	43	31	2	2

TABLE XLVII

PERCENTAGES OF STUDENTS READING THE DESIGNATED NUMBER OF NEWS MAGAZINES

Groups	No. of Students	Number of News Magazines Read		
		None	One	Two or More
(1)	(2)	(3)	(4)	(5)
1. Exper. Class	28	39	50	11
2. 1st Term (a)	25	60	24	16
3. 1st Term (b)	10	30	50	20
4. 2nd Term (a)	101	56	30	14
5. 2nd Term (b)	51	53	41	6
6. 3rd Term	91	56	31	13

TABLE XLVIII

PERCENTAGES OF STUDENTS READING THE DESIGNATED NUMBER OF POPULAR MAGAZINES

Groups	No. of Students	Number of Popular Magazines Read				
		None	One	Two	Three	Four or More
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Exper. Class	28	4	4	32	10	50
2. 1st Term (a)	25		4	28	24	44
3. 1st Term (b)	10	10	10	50	20	10
4. 2nd Term (a)	101	7	9	40	18	26
5. 2nd Term (b)	51	6	18	12	31	33
6. 3rd Term	91	7	13	20	26	34

Tables XLIX and L show the frequency with which students read the newspapers and magazines which they had enumerated. Table XLIX combined all magazines into the same distribution. No substantial differences are found between the groups on those reading habits.

However, interesting differences do appear in the frequency with which different groups of students listen to radio news commentators (Table LI). The members of the experimental class (group 1), and the two groups of first year students--group 2 from first term Social Science courses and group 4 from second term classes listened to news reports on the radio with the greatest degree of regularity. There seems to be, therefore, some connection between competence in social science and the amount of listening to radio newscasters.

The questionnaire asked for the names of commentators who are heard over the radio. In the total number of responses 46 per cent listened to an unnamed variety (mostly local) radio reporters. Thirty-six per cent listened to Walter Winchell, 36 per cent to Lowell Thomas, 22 per cent to Drew Pearson, 14 per cent to Edward R. Morrow, and 8 per cent to Gabriel Heater. Agronski, Kaltenborn, Lewis, St. John, and Swing carried percentages less than 5 per cent.

A group of seven tables (LII to LVIII) list student interest in certain news areas. The fields chosen were those which are most prominent in mass communication media and which are tied more closely to the subject matter of the units in the Basic College Social Science course. Each student checked the degree to which he was interested in reading or listening to discussions of each category of subject matter.

TABLE XLIX

PERCENTAGE OF STUDENTS WHO READ MAGAZINES WITH DESIGNATED DEGREES OF FREQUENCY

Groups	No. of Students	Frequency		
		Regularly	Occasionally	Rarely
(1)	(2)	(3)	(4)	(5)
1. Exper. Class	28	71	29	
2. 1st Term (a)	25	68	32	
3. 1st Term (b)	10	70	30	
4. 2nd Term (a)	99	60	38	2
5. 2nd Term (b)	49	61	37	2
6. 3rd Term	90	55	43	2

TABLE L

PERCENTAGE OF STUDENTS WHO READ NEWSPAPERS WITH DESIGNATED DEGREES OF FREQUENCY

Groups	No. of Students	Frequency		
		Regularly	Occasionally	Rarely
(1)	(2)	(3)	(4)	(5)
1. Exper. Class	26	77	15	8
2. 1st Term (a)	23	61	39	
3. 1st Term (b)	10	70	30	
4. 2nd Term (a)	99	71	26	3
5. 2nd Term (b)	48	63	35	2
6. 3rd Term	91	77	22	1

TABLE LI

PERCENTAGES OF STUDENTS WHO LISTEN TO RADIO NEWS COMMENTATORS WITH DESIGNATED DEGREES OF FREQUENCY

Groups	No. of Students	Frequency		
		Regularly	Occasionally	Rarely
(1)	(2)	(3)	(4)	(5)
1. Exper. Class	23	43	57	
2. 1st Term (a)	20	55	30	15
3. 1st Term (b)	8	25	50	25
4. 2nd Term (a)	84	44	46	10
5. 2nd Term (b)	42	14	71	14
6. 3rd Term	78	28	60	12

The specific choices in degrees are "greatly enjoy", "read for information only", "not particularly interested", "don't like". The hypothesis basic to this investigation is that students do better in those areas in social science in which they have a background of interest in out-of-school reading or listening.

Table LII gives the data on the percentage of students in each group who state varying degrees of interest in discussion on state and national politics. In examination of the table it is noted that group 4 ranks higher than the others on the percentage who "greatly enjoy" discussions of state and national politics. Twenty per cent more students in group 4 than group 5 checked this degree of interest. Referring back to the comparative study of achievement on the comprehensive examination of these two groups of second term accelerated students we find that those in their first year in college (group 4) excelled those in their second year in college (group 5) at the 5 per cent level of

significance on that unit in the Social Science course entitled "Relationship Between Man and Government".[1] An interesting relationship between reading interest and success on a Social Science examination is therefore shown but to attempt to claim that one is the cause of the other would lead to various difficulties. One of the hazards of such a contention is shown by comparing groups 1, the experimental class, with group 2, first term special permission students, in their first year in college. On the analysis of the comprehensive group 1 shows a superiority over group 2 on the unit on government[2] but in Table LII on news interests group 2 shows a slightly higher degree of interest in state and national politics than group 1. Thus, the relationship between success in parts of a social science course with corresponding fields of news interests is not a consistent one.

TABLE LII

PERCENTAGES OF STUDENTS EXPRESSING DESIGNATED DEGREES OF INTEREST IN DISCUSSIONS CONCERNING STATE AND NATIONAL POLITICS

Groups	No. of Students	Degree of Interest			
		Greatly Enjoy	Read for Information only	Not Particularly Interested	Don't Like
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	28	29	61	10	
2. 1st Term (a)	25	32	64	4	
3. 1st Term (b)	10	20	60	10	10
4. 2nd Term (a)	101	46	48	4	2
5. 2nd Term (b)	50	26	54	20	
6. 3rd Term	88	20	59	20	1

1. Infra., p. 138.
2. Infra., Table XVII, p. 126.

Student out-of-school interest in the subject of international affairs is shown in Table LIII. It is interesting to note that the groups with the lowest percentages who "greatly enjoy" this area in the news are the two groups displaying the lowest achievement on the comprehensive examination (groups 5 and 6).[1]

TABLE LIII

PERCENTAGES OF STUDENTS EXPRESSING DESIGNATED DEGREES OF INTEREST IN DISCUSSIONS CONCERNING INTERNATIONAL AFFAIRS

Group	No. of Students	Degree of Interest			
		Greatly Enjoy	Read for Information Only	Not Particularly Interested	Don't Like
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	27	37	59	4	
2. 1st Term (a)	25	48	48	4	
3. 1st Term (b)	10	50	50		
4. 2nd Term (a)	101	45	45	8	2
5. 2nd Term (b)	49	25	61	12	2
6. 3rd Term	91	32	54	12	2

Student interest in news in the economic world is presented in Table LIV. It is difficult to find any pattern through which conclusions can be drawn other than that (as in the previous table) groups 5 and 6 rank at the bottom in column 3, among those who "greatly enjoy" discussions on business and finance. It may also be remembered that group 4 showed significant superiority over group 5 on the unit on "Organization for Production" on both parts one and two of the Social Science comprehensive examination.

1. Table XXI, p. 154.

TABLE LIV

PERCENTAGES OF STUDENTS EXPRESSING DESIGNATED DEGREES OF INTEREST IN DISCUSSIONS CONCERNING BUSINESS AND FINANCE

Groups	No. of Students	Degree of Interest			
		Greatly Enjoy	Read for Information Only	Not Particularly Interested	Don't Like
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	28	18	22	46	14
2. 1st Term (a)	25	20	32	44	4
3. 1st Term (b)	10	30	10	50	10
4. 2nd Term (a)	99	17	39	36	8
5. 2nd Term (b)	50	10	40	36	14
6. 3rd Term	89	14	21	47	18

In connection with student interest in discussions on agriculture Table LV shows quite wide differences between the groups. No entries are made in column 3 for group 3 and only 7 per cent of third term students (group 6) say they "greatly enjoy" reading on this subject. Greatest interest is displayed by the first term, first year special permission students (group 2) with the second term second year students (group 5) ranking next. No particular relationships are noted between interest as shown on this table and achievement on the unit "Agriculture in Transition". The reason doubtless is that a reading interest in practical aspects of farming may have little relation to the economic problems of American agriculture.

Table LVI lists the results of the inquiry concerning interest in discussions on scientific discoveries and information. The purpose in including this question was the thought that interest in scientific

TABLE LV

PERCENTAGES OF STUDENTS EXPRESSING DESIGNATED DEGREES OF INTEREST IN DISCUSSIONS CONCERNING AGRICULTURE

Groups	No. of Students	Degree of Interest			
		Greatly Enjoy	Read for Information Only	Not Particularly Interested	Don't Like
(1)	(2)	(3)	(4)	(5)	(6)
1. Expor. Class	27	19	15	44	22
2. 1st Term (a)	22	32	23	36	9
3. 1st Term (b)	10		40	40	20
4. 2nd Term (a)	98	11	26	49	14
5. 2nd Term (b)	51	25	16	47	12
6. 3rd Term	89	7	18	42	33

TABLE LVI

PERCENTAGES OF STUDENTS EXPRESSING DESIGNATED DEGREES OF INTEREST IN DISCUSSIONS CONCERNING SCIENTIFIC INFORMATION

Groups	No. of Students	Degree of Interest			
		Greatly Enjoy	Read for Information Only	Not Particularly Interested	Don't Like
(1)	(2)	(3)	(4)	(5)	(6)
1. Expor. Class	28	39	32	25	4
2. 1st Term (a)	25	60	28	8	4
3. 1st Term (b)	10	40	30	30	
4. 2nd Term (a)	101	57	31	12	
5. 2nd Term (b)	51	29	55	14	2
6. 3rd Term	91	45	30	19	6

information would support interest in the scientific method in studying human relations. There is little evidence that such is the case. The two are apparently not associated in the mind of the student. Thus a larger percentage of third term students (group 6) "greatly enjoy" this area of the news than those in the experimental class (group 1).

Tables LVII and LVIII are concerned with student interest in out-of-school discussions on race relations and "other social problems" respectively. Few differences are shown between the groups in these areas. Living in a more or less homogeneous culture in Michigan, at least as far as minority questions are involved may be the reason for little variation between groups on racial problems. As for Table LVIII the question asking for interest in "other social problems" may have been a catchall for too great a variety of interests and obviously would result in little variation.

Students attitudes on the values which knowledge of current affairs has as an aid to a better understanding of the subject matter covered by the Basic College Social Science course are presented in Table LIX.

The statements made by the students were given in free response form and classified by the tabulator on the scale, "good, some, little, none". An examination of the table will show all the accelerated groups to be substantially above the non-accelerated group of third term students (group 6), in responses which give indication that knowledge of current affairs has good value. Thus, though previous tables showed little differences between groups as to numbers of periodicals read

TABLE LVII

PERCENTAGES OF STUDENTS EXPRESSING DESIGNATED DEGREES OF INTEREST IN DISCUSSIONS CONCERNING RACE RELATIONS

Groups	No. of Students	Degree of Interest			
		Greatly Enjoy	Read for Information only	Not Particularly Interested	Don't Like
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	27	63	26	11	
2. 1st Term (a)	25	36	52	12	
3. 1st Term (b)	10	60	30		10
4. 2nd Term (a)	100	42	39	18	1
5. 2nd Term (b)	50	50	32	18	
6. 3rd Term	86	36	43	19	2

TABLE LVIII

PERCENTAGES OF STUDENTS EXPRESSING DESIGNATED DEGREES OF INTEREST IN DISCUSSIONS CONCERNING OTHER SOCIAL PROBLEMS

Groups	No. of Students	Degree of Interest			
		Greatly Enjoy	Read for Information only	Not Particularly Interested	Don't Like
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	27	56	37	7	
2. 1st Term (a)	23	35	57	8	
3. 1st Term (b)	88	75	13	12	
4. 2nd Term (a)	90	42	44	13	1
5. 2nd Term (b)	47	49	38	13	
6. 3rd Term	85	35	50	15	

and the reading interests which students have, Table LIX seems to indicate that there are significant differences as to what students get out of current reading material which has a bearing upon Basic Social Science. This is further supported by some of the statements made by students themselves concerning the value of such reading. Some of the well-considered responses are given below.

"I feel that I have derived greater knowledge from radio, magazines and newspapers concerning social science than from any other source. Time magazine, especially, gives much space to the social science field. Labor unions, elections, customs, etc., are treated very open mindedly and in many cases the history or parts of it, are written up in the magazine giving the reader a working knowledge of this material."

"What little knowledge I have has been of value. If I knew more about current political and governmental affairs it would have saved a lot of time."

"I think I am quite widely read on most current events and problems and I know enough to understand and talk about them. They naturally tie up with the Social Science course."

"The knowledge of current affairs helps you to feel 'at home' in a social science course. There are always examples you can offer for the discussion."

"I think it has been very important."

"I think it has been the most important of all the contributing factors."

"It keeps me abreast of my instructors in recent happenings and ahead of them in certain specific fields."

"Very much so. It is the primary source of information. It has aided me in fitting an entirely new subject to everyday life."

"I have found that my knowledge of current affairs has helped me understand social problems, politics, race relations. To reverse the situation, I have found that second term Social Science has helped me understand the labor problem and labor legislation, for example, the Taft-Hartley Law."

"I have not read enough on current affairs to have it help me but often feel that if I would read more I could understand Social Science better."

TABLE LIX

PERCENTAGES OF STUDENTS EXPRESSING VARYING DEGREES OF BELIEF THAT KNOWLEDGE OF CURRENT AFFAIRS IS OF VALUE IN UNDERSTANDING BASIC COLLEGE SOCIAL SCIENCE

Groups	No. of Students	Amount of Value			
		Good	Some	Little	None
(1)	(2)	(3)	(4)	(5)	(6)
1. Expor. Class	22	50	41	9	
2. 1st Term (a)	19	74	16	5	5
3. 1st Term (b)	9	67	11	11	11
4. 2nd Term (a)	88	57	27	11	5
5. 2nd Term (b)	37	54	30	11	5
6. 3rd Term	70	33	30	27	10

Students do not read many books that have a bearing upon social science unless such books are required reading in connection with their school work. However, students who do read books on questions of human relationships show thereby an interest in the area of knowledge encompassed by social science. Also, such reading should have some bearing on their competence in college social science courses.

Table LX lists the responses to the question, "What books have you read in the last two years that have helped toward your understanding of the social science field?" There are important differences between the groups in the number of books read.

An examination of the table will show that a larger proportion of members of the experimental class (group 1) than any other group has

read books helpful to social understanding. This may be a factor in their competence on the pre-test and their achievement on the comprehensive examination. The table also reveals that the two groups next higher in ability, group 2, (first term, first year, accelerated students) and group 4, (second term, first year, accelerated students) stood above the accelerated groups in their second year in college (groups 3 and 5) and the third term students (group 6).

TABLE LX

PERCENTAGES OF STUDENTS WHO, IN THE PREVIOUS TWO YEARS, HAVE READ THE DESIGNATED NUMBER OF BOOKS WHICH HAVE HELPED TOWARD AN UNDERSTANDING OF BASIC COLLEGE SOCIAL SCIENCE

Groups	No. of Students	Number of Books Read					
		None	One	Two	Three	Four	Five or More
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Exper. Class	28	43	11	21	14	7	4
2. 1st Term (a)	25	60	8	12	8	4	8
3. 1st Term (b)	10	80	10	10			
4. 2nd Term (a)	101	65	8	14	5	4	4
5. 2nd Term (b)	51	74	14	4	4	2	2
6. 3rd Term	91	79	9	8		3	1

Other Basic College courses. While the areas covered by the seven Basic College courses cover distinct fields of knowledge there is, nevertheless, much overlapping. Some courses, such as Effective Living, emphasize concepts and factual material which have many common bonds with Social Science. Familiarity with terms, points of view of the modern social scientist on such questions as marriage and the family, one's relationships to social groups, the nature of personality formation, all

help the Social Science student to some acquaintance with the field. Biological Science stresses the scientific method not only in regard to the subject matter under its surveillance but as well toward anything that comes within one's experience. Social Science does the same. History of Civilization gives an historical understanding of the background and development of social phenomena in the contemporary world.

Students in this study were asked to list the basic courses they have taken or are taking and then to state their attitude toward the helpfulness of these courses in giving them a background for the Social Science course. The tabulator classified their responses along the scale--"good, some, little, none". Table LXI presents the data, giving evidence of substantial differences between the groups. In examining the table it should be remembered that groups 3 and 5 were in their fourth and fifth terms in college when the questionnaire was given hence their members had taken and were taking more of the basic courses than the other four groups, three of whom (1, 2, 6) were in their first term in college, and the fourth (4) were in their second term in college.

Groups 3 and 5, therefore, show a higher percentage of students believing that other basics have "good" or "some" value for understanding Social Science. It should be noted, however, that the accelerated first term students see more relationships between other courses of study and Social Science than does group 6, third term students questioned during their first term.

Some of the actual statements made by the students may be more revealing than tables of percentages.

TABLE LXI

PERCENTAGES OF STUDENTS EXPRESSING VARYING DEGREES OF BELIEF THAT OTHER BASIC COLLEGE COURSES ARE OF VALUE TOWARD AN UNDERSTANDING OF SOCIAL SCIENCE

Groups	No. of Students	Amount of Value			
		Good	Some	Little	None
(1)	(2)	(3)	(4)	(5)	(6)
1. Exper. Class	23	26	30	9	35
2. 1st Term (a)	11	36	18	28	18
3. 1st Term (b)	9	44	44	12	
4. 2nd Term (a)	76	17	24	20	39
5. 2nd Term (b)	47	43	32	21	4
6. 3rd Term	66	17	18	14	51

"All basic courses overlap and these have introduced me to Social Science before I actually took the course."

"Biological Science helped prepare me for the scientific method and also man's biological inheritance."

"History of Civilization broadened my knowledge concerning early labor troubles, unions, and movements."

"Yes. Effective Living and parts of History of Civilization are repeated in Social Science."

"Effective Living helped me since it served as a preview of Social Science."

"History has been helpful as many of the ideas taken up in Social Science such as Marxism and the writings of Adam Smith were also covered well in history."

"I am beginning to realize that one course by itself is not enough. They (Biological Science, Social Science, Written and Spoken English) are all related and one without the other does not give a person as broad an outlook as is desirable."

"Written and Spoken English helped me to understand the use of language in spreading culture."

"I found the basics seem to be closely correlated. One helps you with the other. Some of the answers on our short quizzes I got from one of the other basics rather than from what I had learned in Social Science."

"Effective Living has helped me very much."
"They (Written and Spoken English and Effective Living) have not given me a background for Social Science as I already knew how to write, speak, and live effectively."

"No. Basics are done on a basis of what you already know and I have found none of them of any particular value."

Summary

Five accelerated groups and one non-accelerated group are included in this study to determine whether differences exist in the backgrounds of the students in these groups. The hypothesis to be tested is that differences in success on the Social Science comprehensive examination are directly related to differences in pre-college backgrounds.

Information was obtained on students' background chiefly through the use of a questionnaire. Interpretation of the data is made by use of the analysis of variance and chi-square to determine whether significant differences exist between the groups. Free response statements are included to give additional light upon student attitudes toward the relationship of background to the understanding of Social Science.

The chief findings are:

1. Experience in college, and especially the influence of other Basic College courses helps to give students a basis for a better understanding of Social Science. This is shown in the similarities of achievement of students a year apart in college and two deciles apart in ability who accelerate from the same second term classes of

Social Science. It is also indicated in the attitude of students toward the help other basic courses give toward the understanding of Social Science.

2. No differences which have adequate statistical significance are found between the groups studied on the size of their home towns, the number of children in their families, their position among the children in their families, the educational attainment of their parents, the occupations of their fathers, the amount of church attendance, the frequency with which they discuss economic, political, and social questions at home, and with friends, or their thought concerning the value which such discussion might have toward the understanding of Basic College Social Science. However, in regard to occupation of the fathers, quite noticable differences are discovered between the experimental class and the second term, second year students, and also the third term students (non-accelerates). A much higher percentage of the fathers of the experimental class are found in professional, proprietorial, or managerial positions than the other two groups. Also noted is the fact that a smaller proportion of mothers of the experimental class work outside the home. Some indication is therefore present of the relation of socio-economic status to success in college Social Science. Free-response statements from some discerning students point out the influences which home influences have had upon them in helping toward an understanding of Social Science.

3. As to the influence of high school background no significant differences are discovered in the size of high school from which the

groups of students come, the kind and number of social studies classes taken in high school, or the beliefs concerning the helpfulness of such courses in understanding Basic College Social Science. Quotations from student responses show, however, that some superior students do see such a connection.

4. Some differences are found between the groups on the value which students in those groups saw in high school extra-curricular activities, organizational participation, and job experiences as aiding in social science background. No particular pattern is evident, however, from which definite conclusions may be drawn. Here too, statements from individual students give some of the best clues to an indication that such experiences are of value to some students.

5. No significant differences are apparent between the groups on the newspapers, news magazines, or popular magazines read or the frequency with which they are read. There is a significant difference between them, however, in the frequency with which students in these groups listen to news commentators on the radio. The groups showing superior ability in Social Science tend to listen to news reports more frequently than those of lesser achievement in the course.

6. In regard to the subject matter areas which students enjoy reading about; their interests in state and national politics, agriculture, and scientific information show differences between the several groups but no consistent relationship from which definite conclusions may be made. On international affairs and business and finance, however, considerable variation also exists. The more able groups of students show

a greater enjoyment in reading on such topics than those who are not as competent in Social Science. Much difference is also found between accelerated groups and the non-accelerated group on the aid which students think a knowledge of current affairs gives them toward an understanding of Basic College Social Science. These differences are supported by quotations from free-response statements made by the students.

7. The numbers of books read in the previous two years which have a bearing on increasing one's knowledge of the social science field is evidently a factor of importance. The accelerated groups with highest achievement on the comprehensive examination read a significantly larger number of such books than the other groups.

Thus the hypothesis is partially supported that the backgrounds of students in the six groups in this study have a bearing upon competence in Social Science, though many of the factors which were expected to give support to the hypothesis were shown not to be statistically significant. The hypothesis is not disproven but the support for it is not too strong. That the relationship exists is supported by statements from the students themselves. One's background is important. What else is there that contributes to one's understanding at any point in time? The difficulty is in abstracting certain influences of the past and attempting to assay their importance. Competence in social science is compounded from so many interacting variables in one's total experience that to separate them out is almost an impossible task.

CHAPTER VII

GENERAL RESUME, CONCLUSIONS, AND RECOMMENDATIONS

General Resume of Findings on the Hypotheses

Hypothesis No. 1. The first and chief hypothesis of the study is:

Students (selected by a social science pre-test) who participate in a one-term special class so increase their knowledge and understanding of social science that they attain significantly higher levels of achievement on the items of the comprehensive examination pertaining to the nine units of the course than each of the following groups:

(a) Students in their first year in college accelerated on the basis of grades obtained in the first term of the Social Science course.

(b) Students in their second year in college accelerated on the basis of grades obtained in the first term of the Social Science course.

(c) Students with a varying time in college accelerated by grades obtained in the first and second terms of Social Science.

(d) Students having all three terms of Social Science whose scores on the comprehensive examination are in the same range as those of the one-term special class.

The finding preliminary to the main analysis of this study showed that students of the experimental class obtained significantly higher grades on the Social Science comprehensive examination than the group of students in their first year in college accelerated from regular first term classes (a), and students having all three terms of the Social Science course (d). However, little difference in grades was discovered between the experimental class and the groups of students in their fourth term in college and first in Social Science (b) and those in the second term of Social Science (c), most of whom were in their second year in college.

When each part of the comprehensive examination is analyzed on the basis of items pertaining to each of the nine units of the course, significant differences in achievement between the experimental class and other accelerated groups are not found on all units of the course. When compared with (a) first term, first year, special permission students no significant differences are discovered on 11 of the 18 means of units scores (nine on each part of the examination). When compared with (b) first term, second year special permission students no significant differences are found on 16 unit means; with (c) second term special permission students on 15 means; with (d) third term students on nine unit means.

The only group which excels the experimental class on any unit of the course is the group of second term special permission students (c), and that on Unit 4, "Organization for Production" on Part II of the examination. It should be noted that no significant differences exist between the groups on this unit in Part I of the comprehensive examination. Also, the second term accelerates were selected for acceleration on the basis of instructor granted grades on this particular unit.

However, significant differences are shown by the experimental class over (a) first term, first year accelerated students on seven units (four in Part I and three in Part II of the comprehensive); over (b) first term, second year accelerated students on two units in Part II of the examination; over (c) second term special permission students on two units in Part II; over (d) third term students on nine units (four on Part I and five on Part II).

It would seem, therefore, that in spite of the fact the experimental class does not excel other groups on all units of the course, it does on a sufficient number to give support to the hypothesis as stated.

Hypothesis No. 2. The second hypothesis is:

> The explanation for the differences between the groups of students examined under the first hypothesis is not found in differences in ability as shown by decile ranking on the American Council on Education Psychological Examination and the Cooperative Reading Test. Another factor (or factors) is present to account for such differences in achievement on the comprehensive examination.

Frequently the explanation given for differences between accelerated students and others on the Social Science comprehensive examination is that superiority in intelligence and reading ability carries them through. The hypothesis here examined is based on the belief that other factors are present to account for differences in achievement on the comprehensive. This hypothesis is tested by equating the groups, first on deciles obtained on the American Council on Education Psychological Examination and next on the deciles on the Cooperative Reading Test, through the use of the analysis of co-variance, and in connection with those units where significant "F" ratios are already found by analysis of variance. After such adjustments are made it is discovered that significant differences still exist. The hypothesis is therefore supported. Other factors than intelligence and reading ability must account for such differences.

Hypothesis No. 3. The third hypothesis is:

> Gains on units of the Social Science course made by students of the experimental class, as shown by differences between scores on a pre-test and a post-test, are greatest in those areas not specifically covered in high school work.

The analysis of gains made by the members of the experimental class on various units of the Social Science course supports this hypothesis. The four units making the greatest gains are, in their order, Fundamentals of Social Science, Agriculture in Transition, Character and Purposes of Contemporary Education, Maintenance of the Family. The concepts emphasized in these units are rarely covered in high school classes. The four units on which the least gains are made are, in their order, from sixth to ninth, Intergroup Conflicts, Relationship Between Man and Government, Maintenance of International Peace, Organization for Production. It is clearly possible that the concepts stressed in these units fall in high school history, government, and economics courses, and are also more frequently the subject matter of current events. It is interesting that the unit on The Position of Labor fell in the middle, in the fifth position, due no doubt, to partial familiarity with the problem from a current events standpoint, but without the technical information emphasized in the Social Science course. The evidence seems to point, therefore, in the direction that the experimental class did give its members an opportunity to increase their competence in those areas where they had the least understanding.

Hypothesis No. 4. The fourth major hypothesis is:

> Significant differences exist between the groups of students in the study in such background factors as home influence, high school social science preparation, organizational activity, and reading habit and interest background.

This hypothesis is partially supported by the data gathered by means of a questionnaire from the 306 students in the six groups included

in the study (five accelerated, one non-accelerated). The chief findings are listed.

(a) There is some indication that other Basic College courses are important in preparing a student for better work in the Social Science course.

(b) No differences with statistical support for their significance are found between the groups on size of home towns, number of children in their families, their position in the family, the educational preparation of their parents, the occupations of fathers, the amount of church attendance, the frequency of discussion of economic, political, and social questions at home or with friends, or their attitudes toward the value of such discussion for their understanding of Basic College Social Science.

(c) No significant differences are evidenced in the size of high school, the kind and number of social studies taken, or the beliefs of the helpfulness of such courses for Basic College Social Science.

(d) Significant differences between the groups are found on the attitudes held concerning the value of high school extra-curricular activities, organizational participation, and job experiences for an understanding of Basic College Social Science. The lack of pattern in the differences, however, make adequate conclusions difficult.

(e) There are no significant differences between the groups in their reading habits of newspapers, news magazines, or popular

magazines, though the superior groups of accelerated students tend to listen to radio newscasters more frequently than other groups.

(f) Significant differences are discovered between the groups in their news interests. No conclusions can be drawn from the patterns which result, however, in the areas: state and national politics, agriculture, scientific information. The more able students, though, are shown to take a greater interest in international affairs and business and finance. Also, the accelerated groups more clearly see the value of a knowledge of current affairs for an understanding of Social Science, than do the non-accelerated group.

(g) The groups with highest achievement on the comprehensive examination have read more books which are of help for an understanding of Basic College Social Science than have the other groups.

In summary of the findings on the investigation of the background of students in accelerated and non-accelerated groups: the only factors in student backgrounds which show statistically significant differences between the groups of students are their out of school activities, especially jobs, their news interests, the books they have read, and the other courses they have taken in the Basic College.

The writer is not prepared to completely overthrow the hypothesis, however. Evidence collected from free responses made by the students show wide differences between students, especially in the importance of home and school influences. Other approaches to the question may throw more light on the hypothesis than this study has done.

Limitations of This Study

A careful examination of this study will reveal a number of limitations.

1. Several of the groups used in the study are rather small. The experimental class consisted only of 28 students. It would have been well to have several experimental classes taught by different instructors but that was not possible in the Fall term, 1948. Also, the other accelerated groups taking the comprehensive examination in the Fall term were small--25, 10, and 43--but they were all that were available. Even so, the number of students taking the comprehensive examination by "special permission" after the first term in Social Science are more numerous in the Fall term than in any other term.

2. The experiment would have been of greater assistance in determining which students could attain a desirable level of achievement through a one term accelerated class had a sample of students representing all levels of ability on the pre-test received the opportunity of such acceleration.

Students from the top 7.6 per cent of those taking the pre-test were arbitrarily selected for membership in the experimental class. There should be some evidence as to whether 10, 15, or 20 per cent could not have done as well. At least the point at which students should be permitted to accelerate could more validly be set after experimentation than by any guesses at the dividing point. It was not administratively feasible to conduct the experiment in this manner in the current study.

3. The interpretations of this study may have been more conclusive had it included students taking a pre-test who went on for one, two, or three terms of Social Science. Studies of their growth during the course and subsequent achievement on the comprehensive examination would have been on a basis more easily supportable. However, sufficient students did not take the pre-test to warrant such procedure and most of the best students who did take it were drawn off for the experimental class. Also, analysis of competence in social science for those finishing in different terms would have been questionable as the comprehensive examination at the end of each term is somewhat different from that given every other term in specific subject matter covered, difficulty of the items, discriminating power of the items, etc. Thus, in this study, comparative achievement on the comprehensive is made only of those taking the examination in the Fall term, 1948. The background studies include a somewhat different group. They are made concerning students who entered college in the Fall, 1948 and proceeded for one, two, or three terms in the course to determine whether any differences exist in the pre-college background of those who accelerate along the way and those who do not. Also included are students accelerating after one or two terms in college but who have been in college for a year.

The limitations of this study are therefore recognized. It's primary contribution is largely exploratory in a field where much investigation and experimentation has not as yet been done. It attempts to review what past experience with acceleration has revealed. It also gives new evidence on the possible use of a pre-test in selecting students for acceleration, offers some suggestions on the operation of

a one-term special class for superior students, and presents some tentative conclusions regarding students who do accelerate. The study also gives some data on the nature of social science students' background for the purpose of throwing some light on the differences between students who take the Social Science course.

Conclusions

The general conclusions here presented concerning the acceleration of students in Basic College Social Science are drawn from the results of this study and other experimental and empirical research.

1. The acceleration of students in Basic College is a desirable practice. It is supported by the data in this study as well as in previous research.

a. Students who accelerate in Basic College Social Science do as well (or better) on the comprehensive examination for the course as students of seemingly similar ability who do not accelerate. Studies made by the Michigan State College Board of Examiners show that students accelerated on the basis of grades obtained in first or second terms of Social Science do as well on questions pertaining to terms of the course not taken as students receiving the same grades on the comprehensive who have had three full terms of Social Science. The results of this study show the experimental class and the three other accelerated groups of students to be significantly superior to the group having the whole course, both as to grades obtained on the comprehensive and as to achievement on items dealing with the nine units of the course.

b. Many students come to college possessing a competence in Social Science by which they already meet some of the objectives of the Basic Social Science course as thoroughly as many students who have had the full course. Although the particular background factors contributing to this competence are difficult to establish, nevertheless wide differences do exist. These differences seem to consist of more than differences in intelligence and reading ability. There is evidence of a degree of social understanding, familiarity with terms, concepts, modern social problems, which the average student does not have. Acceleration practices, therefore, give recognition to these differences and allow students with a better than average background the opportunity of proceeding at a faster rate and obtaining credit for the Social Science course at an earlier time than their less capable fellow students who have need of a longer course to obtain the same objectives.

c. Basic College students have other personal differences which are quite apart from their familiarity with the content of the Social Science course. The exact nature of these differences is difficult to establish but such words as ambition, incentive, motivation, attempt to express individual characteristics which are important to the speed and thoroughness with which a student will meet college requirements. A program permitting acceleration allows a student to progress at a pace commensurate with his desire and ability to do so. He is not held to a rate found necessary for the average student.

d. Accelerated students in Basic College Social Science tend to maintain high scholastic averages in other courses and do not feel they have been handicapped, either academically or socially, because of such acceleration.

Therefore, acceleration of Basic College Social Science students is highly desirable. It permits a flexibility which gives recognition to wide differences in persons taking the course. It encourages ambitious and able students to greater effort to meet the requirements of the course. It enables superior students to complete their program of general education and progress to more specialized courses which are of greater maturing influence.

In a day when costs of higher education are carefully scrutinized, when military service delays the beginning of a career, programs of acceleration reducing the time spent in college by superior students and thus the amount of instruction necessary, should gain increased acceptance. Acceleration practices have proven their worth. They have been shown to be consistent with the best interest of capable students and the college or university concerned.

2. A special class seems to be the most satisfactory means of increasing the competence of students who accelerate in Basic College Social Science.

The analysis of achievement on the Social Science comprehensive examination made by this study points to the advantages of a one-term special class for students possessing high competence in social science. This is shown both by an investigation of grades received on the

comprehensive and accomplishment on each of the nine units of the course as determined by item scores on unit subject matter.

Grades of members of the special class were appreciably higher than those of first-year students accelerating from the first term of regular Social Science classes. They were somewhat better than first term students in their second year in college, and also second term students, most of whom had five or more terms in college.

The analysis of unit items on the comprehensive showed the members of the special class to be somewhat superior to the other three accelerated groups.

(1) They were significantly better than first year students accelerating from first term classes on four units in Part I and three in Part II of the comprehensive examination but were not excelled by them on items pertaining to any unit.

(2) Special class students were significantly superior to second year students accelerating from first term classes on only two units in Part II of the comprehensive but were not bettered by them on items pertaining to any unit.

(3) The members of the experimental class significantly excelled second term students (most of whom were in their second year in college) on only two units in Part II of the examination. The special class, however, was excelled by this group on one unit in Part II.

Thus, though the evidence does not show an overwhelming superiority of the special class over the other accelerated groups, the

conclusion can justifiably be drawn that first year students with ability to accelerate after one term of Social Science can profitably take a special one-term class covering the whole course. Instructor guidance and a more thorough coverage of the entire course is likely to be more beneficial to the student than merely taking the first term of the regular Social Science course and relying upon his own preparation for the remaining two terms work of the course.

Students with a year of college experience, however, seem to do about as well on the comprehensive examination as the first year students in the special class. It may be argued, therefore, that Social Science might profitably be given only in the sophomore year (though the same may be true of every other course and how would the student grow unless he took some courses his freshman year?). A study reviewed in a footnote on page 138 shows two groups of students accelerating from second term Social Science classes to be nearly equal. One group was in its second term in college, the other in its fifth. The latter ranked two deciles lower than the first in intelligence and reading ability. A year of college experience had placed them both on a par, at least as far as competence in Social Science is concerned. This evidence, however, does not necessarily discount the value of a special class. For it matters little whether growth has come through college experience or through rich experience preparatory to college. Students who are able to show competence in social science, by whatever means achieved, can profit from a special course building

on their better background. It will save them precious time, expense, and enable them to take other courses of more maturing influence or obtain an earlier start on their careers. The capable student, because of his ability and his favorable background, can acquire the essential concepts of the Social Science course in a one-term class specially designed to meet this purpose. He will thus obtain what most other students will miss through accelerating from regular Social Science classes.

3. Selection of students for acceleration in Basic College Social Science can probably best be accomplished by use of an examination which adequately samples the knowledge and understanding expected of students having the course.

Comparative analyses of the experimental one-term class chosen by a pre-test, and students accelerated from regular Social Science classes because of grades obtained show a superiority in achievement by the experimental class, both on the basis of grades received on the comprehensive examination and on a sufficient number of the units of the course. This does not prove, however, that such success was due to the manner of selection. Other variables such as the nature of the one-term class and the increased motivation of the students were probably important factors. Some of the background studies so, nevertheless, point in the direction of pre-college influences upon members of the experimental class which were not present to as high a degree among other accelerated groups, e.g., books read, news interests, and high school sociology courses. These are factors which would tend to have

an effect upon the student's understanding of social science as shown by a pre-test. Therefore, from the evidence of the present study, selection for acceleration by examination would seem preferable to any other method.

It is thus the chief conclusion of this study that students who enter college with a competence in social science equal to the minimum required of students upon completion of the Basic College Social Science course should be given the opportunity of a special one-term class in which the most essential concepts of the whole Basic College Social Science course are taught. Students taking the course shall automatically have the privilege of taking the Social Science comprehensive examination to meet the Basic College requirements for the course.

Recommendations

1. An examination to test competence in social science should be given to all freshmen students during Orientation Week in the Fall term. This test, by which students are chosen for acceleration, should be under constant revision. The examination used to select students for the experimental class in this study was a previously used comprehensive examination of 300 items. A test of such length is not necessary for this purpose. Neither should items be included which refer to specific readings required in the course. The test should stress such factors as the characteristic vocabulary necessary for thinking in terms used by the social scientist, the most important concepts on the nature of society and culture, the understanding of social processes,

an appreciation of some of the more pressing social problems. The test should be perfected by use of item analysis procedures and standardized by experience with students who have taken the whole Social Science course. Continual revision of the test is necessary to keep pace with a changing course.

2. Arrangements should be made whereby sophomores and transfer students who did not take Basic Social Science their freshman year would have an opportunity to take a pre-test to determine competence in social science and possible inclusion in the one-term special class. Even though such students may have taken the pre-test during Orientation Week their freshman year, the growth which they have probably made during their first year in college, as shown by several studies, may be such as to show a higher level of understanding of social science than was evidenced in the first pre-test.

3. Students taking the pre-test should be informed of its nature and purpose in order that they may make the best use of their opportunity. Announcements in handbooks or bulletins, plus notice at the time of the pre-test should explain the acceleration program. Experimentation is also desirable in giving greater publicity, through high school administrations, of the acceleration process by pre-test and special class, that capable students who may come to college may be pre-warned of the pre-test and its use and value to them. The ambitious student will prepare himself for a favorable showing on the examination. The University of Buffalo has had some experience with a similar practice and reports considerable success.

4. Students making a D or better on the pre-test (in terms of achievement of students with three terms of Social Science) should be offered the opportunity to enroll in a special one-term class presenting the essentials of the whole Social Science course. The University of Chicago grants exemption from a course with a D grade on a proficiency examination. The reasoning supporting the practice is that credit is granted to students making such a minimal grade after they have had a course so why not grant credit to students showing the same degree of competence without having the course? For reasons stated in Conclusion 3 and partially supported in this study, the suggestion is made that all students making aD or above may enter a one-term class. At such time, however, that an analysis of the pre-test may show that a student has a satisfactory understanding of the most important concepts of the course, consideration might be given either to allow the superior student to pursue independent study in preparation for the comprehensive examination or to grant exemption from the Social Science course.

5. Analysis of the results of the pre-test for each group of students taking a one-term course will aid the instructor in determining those areas of the course which need the greatest emphasis that he may adapt the course to student needs. The analysis of the gains made by the experimental class in the current study reveal that too much time was spent on several units where the students probably had the best background or could do satisfactory independent study. Valuable time

can be saved in a shortened course by eliminating areas where satisfactory competence is already in evidence.

6. Consideration should be given to variations in the length and frequency of class meetings. The normal 50 minute period three times weekly does not seem adequate, according to experience with the experimental class. The suggestion is made for either two two-hour sessions or two hour-and-a-half sessions scheduled at such a time that the instructor and students can stay for such longer time as desired. The responsiveness of a group of superior students, ambitious to learn, is a delight to any instructor. Profitable discussion should not be curbed by a short class period.

7. Greater facility for instructor-student conferences should be arranged with definite plans for encouraging student attendance. Superior students have a curiosity concerning questions raised in the course and can benefit through suggestions made to them individually to aid in their thinking or to offer additional sources for their reading. The use of the "clinic" sessions in the experimental class plus frequent student interviews gave support to the helpfulness which such instructor availability can give.

8. Readings for the one-term class of accelerating students may quite advantageously be on a higher level of difficulty and dig deeper into some areas of the course than do the regular assignments. Reduction may be made of numerous readings on which members of the class show highest competence, substituting sources which stress some of the most important concepts in an integrated and interrelated course.

9. The special one-term Social Science classes should be subject to constant experimentation testing the value of suggestions previously made plus other variations in procedure in an attempt to produce the most successful learning situation for the students in these classes. Methods of class conduct, use of audio-visual aids, diagnostic use of tests, analysis of comprehensive examinations taken by accelerated students can all be subject to investigation for the betterment of the classes.

10. Further evaluation of the whole acceleration process is desirable. Research on the question is in its early stages. More information is needed on the factors which make for successful acceleration among some students and not others. What are the personality factors which distinguish two students of seemingly equal ability; one of the two accelerates, the other does not; or, one is successful in his acceleration and the other is not? What is the real difference in the retention of the essentials of the Social Science course (several terms after the end of the course) between students of equal ability who do and do not accelerate? A more complete examination of the achievement of accelerated students in other courses might also be made. Students think they have not been handicapped through acceleration. Does the evidence really show that such is the case? Answers are needed to these and other questions on the practice of adopting college curricular and credit requirements to the needs and abilities of individual students.

BIBLIOGRAPHY

BOOKS

The Board of Examiners, Michigan State College. Comprehensive Examinations in a Program of General Education. East Lansing, Mich.: Michigan State College Press, 1949.

The Board of Examiners, Michigan State College. The Comprehensive Examination System at Michigan State College. A Handbook for Students. East Lansing: Michigan State College, 1949.

Fee, Walter R. A General Education Course in Social Science at Michigan State College. McGrath, Earl J., Editor. Social Science in General Education. Dubuque, Iowa: Wm. C. Brown Company, 1948.

Gray, H. A. Some Factors in the Undergraduate Careers of Young College Students. Teachers College, Columbia University, Contributions to Education, No. 437. New York: Teachers College, Columbia University, 1930.

Keys, Noel. The Underage Student in High School and College. University of California Publications in Education, Vol. 7, No. 3. Berkeley, California: University of California Press, 1938.

Lowell, A. Lawrence. At War With Academic Traditions in America. Cambridge: Harvard University Press, 1934.

Pressey, Sidney L. Educational Acceleration: Appraisals and Basic Problems. Columbus: The Bureau of Educational Research, Ohio State University, 1949.

Studies in Articulation of High School and College: With Special Reference to the Superior Student. University of Buffalo Studies, Vol. IX, Series I. Buffalo: University of Buffalo, 1934.

PERIODICALS

Allison, Jane M. and Benjamin S. Bloom, The Operation and Evaluation of a College Placement Test Program. The Journal of General Education. IV (April, 1950), 231.

Bloom, Benjamin and Jane Allison. Developing a College Placement Test Program. The Journal of General Education. III (April, 1949), 213.

Brown, Clara M. An Experiment in Sectioning. Journal of Higher Education. I (May, 1930), 269-73.

Eckelberry, R. H. Acceleration in College. Journal of Higher Education. XIV (April, 1943), 176.

Husband, R. W. Studies in Student Personnel at Dartmouth. Journal of Personnel Research. II (May, 1923), 76.

Rather, Howard C. General Education at a State College with Technological Traditions. Higher Education. III (May 15, 1947).

Reeder, C. W. Excess Schedules. Journal of Higher Education. XVII (February, 1946), 99-101.

Silverman, Y. and Vernon Jones. A Study of Early Entrance to College. Journal of Educational Psychology. XXIII (January, 1932), 71.

Taves, Marvin J. The Application of Analysis of Covariance in Social Science Research. American Sociological Review. XV, No. 3 (June, 1950), 381.

Tyler, Ralph W. Placement Tests as a Means of Determining Advanced Standing at the University of Chicago. Journal of the American Association of Collegiate Registrars. XX (July, 1945), 522.

Van Der Jagt, Ervin R. A Study of the Performance of Basic Biological Science Students in Advanced Biology Courses. Science Education. XXXIV (March, 1950), 85-93.

UNPUBLISHED REPORTS

Performance of Special Permission Students. Board of Examiners, Michigan State College.

A Report on Several Problems Related to the Basic College Comprehensive Examinations. Board of Examiners, Michigan State College.

A Statistical Report on Some Aspects of Comprehensive Examinations. Board of Examiners, Michigan State College.