

A COMPARISON OF SUCCESS IN ACADEMIC FOUNDATION COLLEGE
COURSES BETWEEN STUDENTS PRESENTING HIGH SCHOOL
CREDITS IN PRACTICAL ARTS COURSES AND THOSE
WITH CREDITS IN ACADEMIC COURSES

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This study investigated the relationship of high school curriculum to performance in academic foundation college courses. The purposes of the study were twofold: First, to study the relationship of a practical arts high school curriculum as opposed to a college preparatory high school curriculum to performance in academic foundation college courses. Second, to analyze this relationship and its implications for high school students, parents, teachers, and counselors.

A sample of 371 students from the 1967 freshman classes at East Texas State University, North Texas State University, and Stephen F. Austin State University was randomly selected. Students were classified into one of three groups on the basis of the number of non-required high school units in the academic and practical arts areas presented for college entrance. Academic students presented three or more academic units and no more than one practical arts unit. Dualistic students presented two or more academic units and two or more practical arts units. Practical arts students presented

three or more practical arts units and no more than one academic unit.

Groups were compared through covariant analysis of adjusted mean grade-point averages in academic foundation college courses. Students' ACT composite scores were used as the control variable.

The content of this study is arranged into five chapters. The first chapter includes an introduction, statement of the problem, purpose of the study, definitions, assumptions, and limitations of the study. Chapter II reviews the related literature, while Chapter III discusses the methods and procedures of the study. The fourth chapter contains an analysis of the data with the statistical treatment presented in tabular form. Chapter V presents a summary of the study and the findings, conclusions, implications, and recommendations.

It was hypothesized that the academic group would achieve a significantly higher adjusted mean grade-point average in academic foundation college courses than would either of the other two groups. It was further hypothesized that the dualistic group would achieve a significantly higher adjusted mean grade-point average than would the practical arts group.

The analysis of covariance produced an F value of .8128, which was far short of the tabled F value of 3.00 required at the .05 level of confidence. Therefore, the hypotheses

were all rejected. Although not statistically significant, the difference found favored those students with a dualistic background.

A significant correlation between ACT composite scores and grade-point average was found for all groups. However, these scores were found to be much more predictive of college performance for dualistic students than for practical arts students. The coefficient of correlation for academic students fell between those for the other two groups.

As a result of this study, it was recommended that high school teachers and counselors avoid recommending a course of study consisting entirely of either academic or practical arts courses as being best for all students who plan to attend college. High school curricula should be comprehensive enough to meet individual needs and flexible enough to allow for articulation into other programs should the student so desire.

College admissions directors should be wary of strict cut-off points based solely upon standardized test scores, since ACT scores are less predictive for practical arts students. Further studies in this area were also recommended.

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DISSERTATION

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Fulfillment of the Requirements

For the Degree of

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By

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CHAPTER I

INTRODUCTION

In order to prepare for a successful career in an increasingly complex technological society, students must decide at an early age where their interests and abilities lie. It is very difficult for a high school student to decide whether to take a general approach and include a wide range of different areas with little depth of study in any one area, or to take a more direct approach and concentrate upon some specific area of study (5, p. 110). Many failures in high school and college may stem from a failure of the student to choose wisely.

Many factors other than individual interests and abilities influence the student's choice of high school courses and college major. Pressures to pursue a career in keeping with the desires and interests of the parents are often brought to bear on students. Attitudes of counselors and teachers, as well as career goals of peers, often influence students along particular lines.

Practical arts courses on the high school level have long been considered of value in providing students with necessary experiences on which to base occupational career choices (12). Harris (9), however, found that the brighter

the student, the fewer credits are earned in non-academic subjects. This study showed that although 80 per cent of the students earned some credit in commercial subjects, two-thirds of the boys and about one-half of the girls of above-average ability earned fifteen or more credits in academic areas.

Many questions relevant to the effects of high school courses upon success in college remain unanswered. Does the student who pursues a practical arts curriculum in high school jeopardize his chances for success in college? Does the student who pursues an academic curriculum sacrifice the competencies to choose his career wisely, and thus limit his success in college?

Statement of the Problem

There is considerable question concerning the relationship between high school curriculum and performance in college courses. Some investigations have yielded a positive relationship between certain high school courses and college success. Others have concluded that no such relationship is evident. If a definite relationship does in fact exist, knowledge of this relationship would be of great value to high school students, parents, teachers, and counselors.

Purposes of the Study

The purposes of this study were twofold.

1. To determine the relationship between a practical arts curriculum as opposed to a college preparatory curriculum and performance in academic foundation college courses.

2. To analyze this relationship and its implications for high school teachers, counselors, and others interested in preparing students of varied interests for maximum success in life.

Hypotheses

The following hypotheses were formulated for this study.

- I. Students with three or more units in non-required academic high school courses and no more than one unit in non-required practical arts high school courses will achieve a significantly higher adjusted mean grade-point average in academic foundation college courses than will students with three or more units in practical arts high school courses.

- II. Students with three or more units in non-required academic high school courses and no more than one unit in non-required practical arts high school courses will achieve a significantly higher adjusted mean grade-point average in academic foundation college courses than will students with at least two units in non-required practical arts high school courses and at least two units in non-required academic high school courses.

III. Students with at least two units in non-required high school practical arts subjects and at least two units in non-required academic high school subjects will achieve a significantly higher adjusted mean grade-point average in academic foundation college courses than will those students with three or more units in high school practical arts courses and no more than one unit in non-required academic high school courses.

Limitations of the Study

This study was limited to those students who enrolled as beginning freshmen at North Texas State University, Stephen F. Austin State University, and East Texas State University in the fall semester of 1967. Also, the study was limited to those students who continued uninterrupted from high school graduation through the academic foundation college courses which include twelve hours of English, six hours of history, six hours of government, six hours of science, and six hours of mathematics, science, or foreign language. This was done in order to minimize the effects of such factors as work experience, military service, and family responsibility.

Basic Assumptions

It was assumed that any uncontrolled variables such as background and individual interest would not uniquely affect any one group being studied. It was further assumed that

the use of three institutions and many instructors would negate the influence of any one instructor.

Definition of Terms

For the purpose of this study, the following definitions were applied.

1. Required high school courses--courses in grades nine through twelve designated as being required for high school graduation in the Texas Education Agency Bulletin 615, Principles and Standards for Accrediting Elementary and Secondary Schools and Description of Approved Courses, Grades 7-12 (16). These courses consisted of three units of English, one unit of world history, one unit of American history, one-half unit of government, two units of mathematics, and two units of science, for a total of nine and one-half units. Sixteen units were required for high school graduation; thus, six and one-half units could be classified as non-required high school units.

2. Academic foundation college courses--academic foundation college courses required of students in all areas of specialization in the universities studied. These courses include twelve semester hours of English, six hours of history, six hours of government, six hours of science, and six hours of mathematics, science, or foreign language.

3. Practical arts high school courses--non-required high school courses in the area of industrial and vocational education, home economics, commerce, and agriculture.

4. Academic high school courses--non-required high school courses in the areas of English, foreign language, mathematics, science, and social studies.

5. Academic students--students who presented three or more high school units in non-required academic courses and no more than one non-required practical arts high school unit for university entrance.

6. Practical arts students--students who presented three or more high school units in non-required practical arts courses and no more than one non-required academic high school unit for university entrance.

7. Dualistic students--students who presented two or more high school units in non-required arts courses and two or more high school units in non-required academic courses for university entrance.

Background and Significance of Study

The first three decades of the twentieth century saw sweeping changes in secondary education in the United States. While the number of students in high school increased tenfold, the scope of the curriculum consisting chiefly of history, foreign language, mathematics, science, and English was expanded to include social studies, commercial subjects, the arts, home economics, and industrial arts. During this period, the high school diploma became the key to successful life (1).

Educators of this period were justly proud of the great achievement of American schools, but yet, they were not satisfied. They knew that although only one of every six high school students would go on to college; about 66 per cent of the time spent by youth in high school was in the area of college preparatory courses (10). The curriculum was still basically college preparatory in nature, and what the college prescribed for admission determined, to a great degree, what students could study in school.

During the 1930's and early 1940's many studies of the relationship between college entrance requirements and success in college were made. One of the most significant was made by the Commission on Relation of School and College of the Progressive Education Association (1, pp. 106-112). This study compared the college success of graduates of 30 experimental schools with graduates of conventional schools. A total of 1,475 pairs of students was carefully studied, and college success was judged on the basis of intellectual competence, cultural development, practical competence, philosophy of life, characteristics, emotional balance, social fitness, sensitivity to social problems, environmental adaptability, and physical fitness.

The study concluded that the graduates of the thirty experimental schools earned a slightly higher total grade-point average as well as a higher grade-point average in all subject fields except foreign language. They specialized in

the same academic fields as did the comparison students, but received slightly more academic honors each year.

The experimental students did not differ from the comparison group in the number of times they were placed on probation, but were more often judged to possess a high degree of intellectual curiosity and drive. They were more often judged to be precise, systematic, and objective in their thinking, and were more often judged to have developed clear or well-formulated ideas concerning the meaning of education--especially in the first two years in college.

The study further showed that the experimental students more often demonstrated a high degree of resourcefulness in meeting new situations, did not differ from the comparison group in ability to plan their time effectively, and had about the same problems of adjustment as the comparison group, but approached their solution with greater effectiveness. The experimental group participated somewhat more frequently, more often enjoyed appreciative experiences in the arts, and participated more in all organized student groups except religious and "service" activities.

In each college year the experimental students earned a higher percentage of non-academic honors (officership in organizations, elections to managerial societies, athletic insignia, leading roles in dramatic and musical presentations), but did not differ from the comparison group in the quality of adjustment to their contemporaries. They differed slightly from the comparison group in the kinds of judgments

about their schooling, had a somewhat better orientation toward the choice of a vocation, and demonstrated a more active concern for what was going on in the world (1). The study recommended that sources such as student description, evaluation instruments, and records of achievement be secured for obtaining admission information which would not restrict secondary schools to a prescribed curriculum.

In the years that followed, many authors cited the Eight-Year Study as sufficient evidence to warrant change in college entrance requirements and high school curriculum. Leonard (10) stated that the Eight-Year Study had revealed clearly that the graduates of the experimental schools were more successful in college than the graduates of conventional schools. He further stated that the assumption that college success depends upon pursuing prescribed subjects in high school can no longer be accepted by thinking people.

Bing (3), in a study of students presenting practical arts credits for admission to the University of Missouri in 1935-37, found that when the abilities of practical arts students and non-practical arts students were held constant, no significant difference was evident in college success. He therefore concluded that on the basis of evidence found, three units of commerce, or two to three units of home economics, or two units of industrial arts, or as many as six units of agriculture, constitute satisfactory preparation for successful college work.

Segel (13), in a summary of several studies, indicated that the relationship between high school subjects and college scholarship was negligible. Douglass (6), in a study of students who were deficient in meeting admission requirements, found no significant difference between college scholarship of this group and a group of students of equal ability who had met requirements.

Throughout the forties and early fifties college restrictions on high school course offerings were reduced, and many cooperative efforts to improve relationships of high schools and colleges were established. The high schools developed into comprehensive high schools attempting to serve the needs of all students. Colleges began to pay less attention to specific courses and placed more emphasis upon standardized measures of aptitude and achievement regardless of the pattern of high school courses (17).

With the launching of Russia's first "sputnik," however, much new attention was focused upon the nature and purpose of the secondary school. Some educators, legislators, and laymen called for a return to "hard core" education (7). Others emphasized the need for a critical look at education with special attention to revitalization of such academic areas as mathematics, science, and foreign language (8, 14, 18). The changes brought about by this new emphasis upon education during the decade since "sputnik" has had its impact upon current education practices. Research into the

relationship of high school curriculum and college success shows conflicting results.

Sullivan (15), in a study of predictive factors and college success, reported that "difference in college performance between academic and general high schools' student bodies was found to be highly significant." Boone (4) stated that the number of credits in foreign language, when compared with first-year college grade-point average, yielded a partial correlation coefficient that was significant at the .01 level. The number of credits in industrial arts, mathematics, science, and social studies did not show a significant correlation. Naibert (11), on the other hand, found the average grade in all high school mathematics courses to be the most important single predictor of success in a first course in college chemistry.

Campbell (5) found that students with four units of high school English, as well as those with three or more academic credits in high school mathematics and science, achieved significantly higher grades in college than did those with a few high school credits in these areas. On the contrary, a reverse relationship was found between college achievement and the number of vocational courses taken. Baron (2), on the other hand, found no significant difference as related to curriculum followed in high school.

Due to the inconclusive results of this research, many questions remained to be answered. This study attempted to

determine the relationship between high school curriculum and success in college, thus providing information which would be of value to educators and students faced with the problem of course selection for maximum achievement of individual potentialities. The study should prove especially helpful to high school counselors in their advising procedures with students in their schools.

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CHAPTER II

REVIEW OF RELATED STUDIES

The first twenty years of the twentieth century saw very little questioning of classical and traditional college entrance requirements. The Committee of Nine's "Report on the Articulation of High Schools and Colleges" (12) recommended requirements for college entrance which became the accepted standard of the time. These requirements included three units of English, two units of a single foreign language, one unit of history, two units of mathematics, and one unit of science. A second major consisting of two units in advanced academic subjects was also suggested. Four units were left as a means of meeting the needs of the individual.

Grim (28) characterized the research prior to 1925 as emphasizing economy of time, minimum essentials, and educational shortages, with the primary purpose of salvaging the traditional curriculum. A few studies, however, did question the secondary school, college relationship, and its effect upon the educational system as a whole (7, 11, 24, 41).

Challenge of Traditional College Entrance Requirements

One of the first to challenge the college entrance requirements was Colebank (11). In 1919, he expressed a growing conviction among many school men that

No convincing evidence has made certain that a four year secondary school course consisting largely of quite formal studies in foreign language and mathematics, taught by the methods that have been customary in preparatory and other secondary schools, actually lays a better foundation for successful college work and for subsequent success in life than courses of a different character (11, p. 149).

He concluded that if colleges were to maintain current entrance requirements, convincing evidence of their value should be presented.

Gebhardt (24), in his 1923 study of students at the Colorado State Teachers College, found no significant evidence to indicate that any one group of subjects in high school was superior to another as preparation for college work. MacPhail (41), in 1924, made a study of twenty-seven pairs of students of equal ability, one member of which had taken four years of high school Latin and the other member had taken none. Although the freshman grade-point average in college work did favor the group who had taken Latin in high school, this difference was not found to be statistically significant.

Bolenbaugh and Proctor (7) made an effort to determine whether students who entered Stanford University with academic high school backgrounds achieved higher standings in

college subjects than did those with vocational high school backgrounds. They found that when mental ability was held constant, boys who carried from 15 to 50 per cent vocational work in their high school programs were more successful in college than the boys whose courses consisted of academic subjects only. They further found that when intelligence scores and college scholarships were compared, the vocational group had a slight advantage.

Yates (63), in a study of 706 students from the University of Kentucky, the University of Indiana, and the University of Cincinnati, classified the students as having followed a vocational, scientific, general, or classical curriculum. He found that no significant difference existed in college success when individuals of equal mental ability from the various curriculum areas were compared. He stated, "The facts justify the demand that high school work be well done, but not that the college should specify which subjects the high school may offer its students in preparation for higher education" (63, p. 58).

Kent and Schreurs (35), in a study of students at Northwestern University, found the amount of high school English to have a slight negative value for predicting college success. They also found a slight positive relationship between the amount of high school mathematics in predicting success in college trigonometry, but not in college algebra.

Sorenson (55), in a similar study at Northwestern University, found that three or four years of high school Latin were definitely predictive of college success. Mathematics and French appeared to be of lesser predictive value.

Douglass (19) studied the records of 387 students at the University of Oregon and found no relationship between the amount of credit earned in vocational high school subjects and college success. He also summarized studies up to 1932 and found: "Not only was there little or no relation between patterns of high school credits and college success, but apparently there is little relation between the mastery of any particular subject and college success" (19, p. 143). He further predicted that in future decades, selecting college entrants on the basis of minimum credits in certain fields of high school credit would seem a "curious and inexplicable anomaly" (19, p. 147).

Atkinson (4), in a summary of previous studies, found that such studies revealed small differences between classical and vocational patterns, but those which appeared to exist favored the classical. However, he did acknowledge a number of extensive and carefully constructed studies in which no difference was found. In his study, Atkinson found a slight relationship between credits earned in high school subjects and success in college. He concluded that rank in high school class, rank on college entrance examination, and grades in preliminary college courses appeared to be more

important to college success than specific characteristics of high school subject matter pattern.

Bing (6) made a study of the 1935 and 1936 freshman classes at the University of Missouri. This study included 793 students from 205 Missouri high schools who had taken the Ohio State University Psychological Test in their senior year. The students were divided into groups, either practical arts or non-practical arts on the basis of the high school credits presented for college entrance. Students who had taken practical arts courses which included agriculture, commerce, home economics, and industrial arts were compared with those who had chosen no practical arts subjects.

Bing found that little or no relationship seemed to exist between the number of high school credits in practical arts courses, and letter grades and honor point ratio at the university. Also, when ability was held constant, no significant difference was found between the practical arts group and the academic group. He concluded that practical arts courses were of value in preparing students for successful work at the University of Missouri.

Cofield, in a review of the book The Redirection of Secondary Education: A Social Interpretation, seems to strike the common note of the day when he stated,

After hearing college and university faculties for many years with almost routine regularity, blame secondary schools for all manner of deficiencies in the student, it is refreshing to hear such matter-of-fact references to the

detering and stifling effect upon progressive secondary education which has been exerted by the institutions of higher learning (52, p. 235).

Also, he saw a strong possibility that the deficiency lies less in the student which the secondary schools send to the university than in the imagination of those who tell them what to send.

The Role of the American High School

Although the studies of this period were not in absolute agreement as to the relationship between high school preparation and college success, they did exert a strong influence upon educational practices and curriculum offerings of this period. There was much discussion as to the role of the American high school in regard to academic and vocational preparation of the students.

Writers such as Klapper (36) expressed the opinion that the conflict between cultural and vocational functions of the high school is artificially stimulated. He stated,

A daily routine that is excessively vocational leaves neither time nor inclination for living; a life that is given exclusively to cultural activities makes for the most part consumers who do not produce. Few are fit to be "idle singers of an empty day." The sooner we recognize that these two functions are not antagonistic nor discrete experiences, the sooner will we grasp the fundamental unity that must pervade all of education (36, p. 233).

Klapper also saw urbanization as one of the primary problems of this period as the city child missed the opportunity to experience many of the natural forms of motor and

experiential training then available to the country child. He stated that through the use of many kinds of industrial arts and nature studies, education must give back to the child what industrialization has taken away. Further, since most boys and girls were destined to lead lives that are manual and commercial in nature, children should have an insight into the wide and varied range of occupations available to them. He advocated pointed and systematic training in vocational areas in order to produce happy and more useful men and women. Klapper summarized these opinions in the following statement:

Preparation for earning a living surely is not all there is to education, for life is bigger than making a living; but neither is preparation for passive understanding and appreciation of life the beginning and end of education, for again life is essentially active and productive (36, p. 233).

The Eight-Year Study

One of the most influential factors of this period was the work of the Progressive Education Association. Founded in 1918, and based upon the educational ideas of such men as James and Dewey, the Progressive Education Association made a very significant contribution in the form of the Eight-Year Study. In publication of their findings in 1942, the Progressive Education Association made the following comments:

It has long been recognized that these restrictions practically determine the curriculum of most secondary schools. Some have argued that the abandonment of these restrictions would

greatly improve secondary education; others have argued that the result would be chaos, or insignificant tinkering with the curriculum, or no change whatever. The Eight-Year Study put these arguments to the test of experience (49, p. xix).

They further concluded that

Graduates of the Thirty Schools did as well as the comparison group in every measure of scholastic competence, and in many aspects of development which are more important than marks, they did better. The further a school departed from the traditional college preparatory program, the better was the record of its graduates. Thus it was proved that the traditional college entrance requirements and examinations are no longer necessary to insure adequate preparation for college (49, p. xvii).

Many of the schools involved in the study considered the school's function to be more than simply preparing graduates to enter college. One school expressed it in the following manner:

The administrators and teachers have consistently refused to prepare pupils specifically for the College Entrance Board Examinations. The faculty has long felt that some of the specific requirements which colleges had imposed could not be demonstrated to be of general value. . . . It was our hope that the measured results would do much to improve the articulation between school and college (49, p. 662).

The writers further stated the idea that general education was being so planned and taught as to provide training in the necessary skills of communication and organization and insights into personal, social, and economic problems. Such a program was sufficient to take the place of some of the courses which had been accepted as general college entrance requirements.

They further expressed the opinion

Whether colleges and universities will come to accept general education as an entrance credit in its own right or whether the experiences provided in the program must be listed under such subject matter titles as social studies and English remains to be seen (49, p. 210).

Although most writers of the period praised the Eight-Year Study, some authors questioned the interpretation of the outcomes of the study. Lancelot, for instance, stated, "Little in the way of impartial evaluation of its findings has been heard from the hard-headed realists who administer the nation's public schools" (38, p. 55).

He noted two important factors which could give the members of the experimental group an advantage over the group to which they were compared. First, the participating schools were, as a group, schools which conducted expensive educational programs, either private schools, university schools, or schools in wealthy neighborhoods and not typical of the public secondary schools as a whole. Second, the teachers in general were exceptionally capable and resourceful. Also, the teacher-pupil ratio was much lower than would be typical of the norm for public secondary schools of the nation. Lancelot, therefore, concluded that with these two critical factors omitted, the differences in college performance could not be totally attributed to the experimental practices.

Kurani (37) saw as a source of friction between high school and college, the relative proportion of "vocational" to "cultural" subjects that may be recognized by colleges to fulfill their entrance requirements. He cited the Eight-Year Study as indicating the advantages of a more liberal policy in this matter, but pleaded for a judicious interpretation of the findings of this report by both secondary schools and colleges. He also called for more and better guidance practices on the secondary level.

A Broader Base for Selection

With the development of psychological and other aptitude tests, a new basis for selection of students appeared. Investigators now became interested in a number of factors which were possibly related to college success. Among those receiving the most attention were intelligence tests, high school grade-point average, rank in high school class, and the number of credits in specified high school fields.

Although many studies were conducted, there was no complete agreement in the findings regarding any factor. Amount of high school credit in any one high school field was found to be of less predictive value than either intelligence or high school rank. May (43), for instance, found that the students' intelligence and time spent in study were of slightly less predictive value than were high school units and grade-point averages. He further stated that all factors

considered, amount of high school work was a poor index of college success. In a study of University of Maine graduates, Gowen and Gooch (27) found that when compared on either the amount of work done or on the quality of such work, high school subjects were about equal in predictive value for the freshman year of college.

Fowler expressed the problem of selection as follows: "The trouble with college admissions procedures today is that we have no way of looking at a prospective college student as a whole person" (21, p. 92). He felt that instead, the student was seen as a conglomeration of scores, scales, units, letters, random questions, and miscellaneous data which often either cancel one another out and add up to zero, or are taken too literally as a definite signal of future success or failure.

Kurani (37) in 1942, saw selection not simply as an administrative device, but more important as an educational process. "As such, it must be governed and judged by educational philosophy . . . cognizance must be taken of the fact that here we are dealing with personality, with its abilities, fears, hopes, and aspirations" (37, p. 259). The author also expressed the opinion that selection should include more than measures of I.Q. and whether or not he had taken certain high school courses.

Anderson, in noting the problems of selection and articulation between high school and college, stated

Educators and measurement workers have long been seeking improved methods of getting more valid estimates of the broader outcome of education. With respect to academic growth and achievement, the traditional practice has been to estimate the competence of a student in a given subject matter area by testing his ability to recall or recognize accurately a large number of factual data (3, p. 376).

He describes the more recent trend as being toward providing the essential data and measuring the variance in response that is due to the students' comprehension of the material. The tests of general educational development designed for use by the United States Army were cited as being of this type.

In a 1948 study of fifty-six colleges and universities, Prator (48) found strong support for preadmissions guidance and for the use of a variety of methods in selecting candidates for admission to college. He also felt that colleges should encourage only the applicants who could most benefit from the program offered by the institution. The admissions requirement and methods of selection should be planned so that students are properly placed. Prator further stated,

Measures of the candidate's ability, achievement, literacy, and scholastic record are helpful in predicting college success; when such measures are combined with measures of the candidate's personality, character, financial resources, health, interest, and purposefulness, a reasonably good basis for selection should be achieved (48, p. 270).

General Education Emphases

In the years that followed the Eight-Year Study, much was said about the nature, scope, and future of general education. Cox (17), for instance, predicted that education on the secondary level would become more indicative of real life situations and more practical in results. School would become life itself to the child just as a vocation would be to an adult. He felt that the curriculum should be built around a core of social and economic subjects which represent real life rather than the English social studies base. He expresses it as follows:

The practical arts--homemaking, agriculture, commercial pursuits and the industrial arts--would seemingly constitute a "core-subject" group that will provide the maximum opportunity to integrate the entire curricular program in an active and realistic manner not possible with a passive "core-subject" that has come into being as a mere instrument of social development (17, p. 208).

Alberty (1) expressed a similar idea in suggesting a core program based largely upon direct first-hand experience with the "academic" subjects serving as special interest areas. He contended that the experience curriculum will operate properly only when the program of general education has been reorganized in terms of problems, needs, and interests of the students.

Westfall (60) suggested that the responsibility of the school is to guide each student into those experiences which appear to be most profitable for him. He felt that required

work should be concerned primarily with problems of living rather than with restricted college entrance requirements or other specialized needs of only a relatively few students.

Cushman (18) stated that getting ready for college received unwarranted emphasis not only for those students who would not go to college, but also for students who did plan to go to college. He proposed that if the goals of general education were well attended to, most of the needs of college preparation would take care of themselves. He further stated that the high prestige value of college preparatory courses causes them to become the dominating factor in course selection whether or not the student plans to go to college.

However, Maurer (42), in defense of what he calls cultural subjects, expressed a fear that in the clamor for practical high school courses, the real purpose of education may be overlooked. He defined this purpose as an ability to think clearly.

Maurer also cited a study made at John Marshall High School in Cleveland, which showed that about 73 per cent of the subjects studied were classified as life preparatory rather than simply college preparatory. He therefore concluded that the criticism leveled at high schools was unwarranted, as many of the courses considered to be college preparatory were actually "life preparatory" as well.

One of the thirty schools involved in the Eight-Year Study noted the relationship between the non-academic studies and those of a college preparatory nature.

In the summer of 1940 six members of the faculty attended the University of Chicago Workshop to develop material for the non-academic student. Interestingly enough, these materials are now being used with students who are preparing to go to college. Thus, we come more and more closely to a real general education program (49, p. 111).

Sevelle (53) stated that man's progress depends upon two factors: the instinct of human beings to adapt themselves to their environment and the ability of men to use what their fathers have taught them. Since the first of these does not change, then the second, an understanding of what men's fathers have taught them is what constitutes a liberal education. He felt then that the core of education should be built about man's cultural history. Also, since language is the most essential tool of the human mind, the study of literature and language should be included in the core curriculum. The third essential in the core curriculum Sevelle considered to be science. He saw science as the great unifying principle of the modern age.

Harrington believed that "for the average boy or girl, nothing is better than the study of Latin, preferably for four years, whether college follows or not" (30, p. 322). He justified this by stating that Latin gives the most substantial basis for understanding of life.

Studebaker (58), in calling for a general education for all youth, stressed the role of practical arts in providing experiences in the use of tools, materials and shapes common to youth in rural communities, but largely absent to urban youth. He stated: "Today's workers need both general education to give them an understanding of the world in which they live and special training to prepare them for their occupations" (58, p. 5).

Nelson (44), in 1947, saw a trend over the past years in which the secondary schools gradually emerged from the protective custody of the college influence. He called for high school educational programs which would not shirk the responsibility of leadership in meeting the demands of a functional public educational system.

Sherman (54), in 1950, saw the great task ahead in education as winning the opportunity for each pupil to follow an educational program of his own choice. This would require the development of facilities which would make vocational training available to all youth, not so much the training for specific jobs, but mainly enlarging upon the fund of practical knowledge that a person must have to live effectively in his community. He expressed little doubt that those who want and need vocational orientation are denied access to such training because of lack of equipment, staff, and other facilities.

Sherman saw another common problem of public education as one of guidance. Those students who wanted vocational training were guided into academic work to make room for dullards in vocational training. He expressed this as follows: "It is highly possible that some of our doctors, lawyers, and other professional men would have made better auto mechanics, bookkeepers, or farmers, and likewise, some of the workers in non-professional jobs today would have made highly qualified professional men" (54, p. 51).

Sherman further saw the schools as having dispensed two kinds of education, college preparatory and vocational. These were classified as theoretical and practical, although both could be considered practical. He questioned the wisdom of liberal arts educators who thought they could hand out packages of facts to be digested and regurgitated verbatim with no reference to actual life experience. He challenged those who felt that the mental elite have a right to knowledge and that vocational training is only for dullards.

The old idea of certain courses taken as mental discipline for the improvement of the mind becomes sheer luxury when indulged in for that purpose alone. People must live down-to-earth practical lives with their health (both mental and physical), recreation [sic] and necessities of life taken care of first. Then and only then can they indulge in the luxuries of cultural enjoyment. As far as citizenship is concerned, no one has ever been known to exercise the prerogatives of democracy with a clear head when he had an empty stomach (54, p. 46).

Gayle called for a core curriculum which he defined as "that part of a total school curriculum which endeavors to assist pupils in meeting the needs most common to them and to society without regard to any subject-matter classification" (23, p. 290). He referred to the core curriculum at the Highland Park, Illinois high school which was established as an elective program in 1943. The subject matter fields utilized during the twelve years of his study at Highland Park were Grade IX, English and social science; Grade X, English, speech, and biology; Grade XI, American history and American literature; Grade XII, English (great books).

Gayle found from the analyses of the records that there were no appreciable differences between the core and the non-core sample concerning the college experiences selected for study. He concluded that the core graduates had been as well prepared for college matriculation as had the non-core graduates.

The core graduates had been accepted by colleges as readily as the graduates of the conventional curricula, and they had attended college as frequently as the non-core members. He found that the two groups' attendance patterns differed as to general types and sizes of colleges. However, approximately nine-tenths of the graduates in each sample felt that their general college preparation had been adequate or more than adequate. A third of each sample felt

there were inadequacies in mechanics of grammar in relation to freshman English courses, but the general patterns of deficiencies in English were similar for the core and the non-core groups.

Goodrich and Folsom (26) called for a life problem core curriculum in which the life interest of students was basic. This core was to be supported by streamlined courses in basic subjects such as English, mathematics, social studies, practical arts, science, and fine arts. In this way, the right relationship between school and life could be realized and the goals of general education achieved.

Cushman (18) saw general education as fostering the growth and development of the individual and as perpetuating the culture, economy, and mores of society. Romine (51) defined general education as a broad type of education aimed at developing attitudes, abilities, and understandings. He considered it not as college or vocational preparatory, but rather life preparatory.

The Comprehensive High School

The changing purpose of secondary education gave rise to the comprehensive high school. Keller (34) defined the comprehensive high school as serving the needs of all American youth, no matter what their race, creed, intelligence, interest, aptitudes, skill, wealth, or social status. To be comprehensive, a high school must teach all varieties of

skill and all kinds of knowledge to all kinds of people bent upon living socially profitable lives and prepare them for potentially successful vocations. He expresses this idea as follows:

A fully comprehensive high school (if the term is to mean anything) is one that combines all the best features of an academic high school and a vocational high school, and, therefore, serves the needs of all youth in the community. Schools with only industrial arts and homemaking and typewriting courses are making only the merest gestures toward reality (34, p. 17).

Patterson (46) traced the development of North Adams, Massachusetts High School from a selective to a comprehensive high school. He saw the changing purpose of the secondary education program as being reflected in the growth of the multiple curricula plan. As many students could profit from an educational program designed to prepare them for life in the community, for them, there was a lessening of requirements in the languages and an increase in the offerings of practical subjects. A chronological breakdown of the program of studies showed that prior to 1869 the single purpose of the high school was college preparatory. In 1874, the curricula consisted of the classical courses for college preparation and an English and mathematical course which was considered as preparation for life in the community. In 1885, a business course was added. By 1927, the curricula included the classical, scientific, practical arts, household arts, secretarial, business, and general.

The growth of this multiple curricula plan indicated the awareness of the need for changing the purposes and offerings of the high school to meet the needs of those youths who were not interested in preparing for college.

Gilchrist (25) saw the comprehensive high school as encompassing a balance in curriculum in levels of difficulty, depth in curriculum, individualized education, and functional learning. He concluded that college entrance requirements, which were largely determined by test scores in academic subjects, were detrimental to the continued function of the comprehensive high school.

Sylvester (59), in a 1951 study of comprehensive and vocational high schools, found much discussion about the relative values of each type of school. Thirty-one educators, including school superintendents, principals, professors, and state directors were randomly surveyed.

He found that in vocational schools there was little class distinction. Such was not the case in many of the general and comprehensive high schools. Usually the academic courses were ranked in first position, with business courses in second, and practical arts and industrial courses last. Pupils who were considered most worthy were usually guided into the academic courses, while those who were considered dull were directed into the courses which offered preparation for work.

Conant, in 1967, saw a changing role of vocational courses over the past ten years. New federal legislation replaced the strict limits of the old Smith-Hughes Act. Vocational shop work could then be placed on a cooperative basis. As Conant expressed it,

This meant that even in such fields as tool and die work, it was possible for a boy to spend two or three or four hours of the day in the twelfth grade in a shop run by industry itself and yet receive academic credit for this work (15, p. 3).

Conant questioned the wisdom of sending those who desired vocational education to a vocational school for the entire day. He saw this arrangement as a threat to the comprehensive high school concept and felt that bussing students to a central spot for use of shops for a portion of a day was more advantageous. In this way the student would still remain a member of a comprehensive high school in which he or she would do the academic work.

Conant emphasized the importance of good instruction in such fields as business education, home economics, drafting, auto mechanics, tool and die work, and building trades. He saw this instruction as valuable not as measured by marketable skills, but as a highly motivating force for a certain type of youth who experienced difficulty or apathy with English, mathematics, foreign language, and physics.

The Period of Scientific Emphasis

With the end of World War II and the implications of the Atomic and Scientific Age, a new set of problems arose in the minds of many educators. Some began to question the value and wisdom of a broad general education in a period of rapid scientific specialization.

With the launching of Russia's first "sputnik" in October, 1957, America was shocked into a critical evaluation of the nature and scope of secondary education.

Lee, in reference to the Soviet Union's launching of the first "sputnik," commented:

Alarm gripped the American people, and at once there followed cries of 'something must be done to meet the challenge.' Attention soon turned to the nation's high schools. Pointed inquiries were made concerning science courses at this level (39, p. 304).

Lee also cited the divergence of opinion between those who wished the natural sciences to receive a major role in the high school curriculum and those who felt the humanities should be the dominant factor in the high school program. The justification given for the scientific emphasis was that of national survival in the face of the recent technological advances of the Soviet Union. This was considered a time of crisis and peril in which unusual and emergency curricula must be given priority.

On the opposite end of the spectrum were those educators who felt that humanities should continue to hold their place

of dominance in the high school curriculum. As justification for this point of view, it was noted that most of the youth in high school would never become professional scientists, but would soon be taking their places in the world as men and women. A "balanced" program in the humanities was therefore advocated.

Gardner suggested that the surge of publicity about Soviet schools had produced many false impressions and foolish conclusions about education in America. He further states,

Much of the argument over education today is coming from people who are not really interested in facing problems as they exist. They are interested in venting their prejudices or in beating one another about the ears with slogans and battle cries (22, p. xi).

Lee referred to a large number of published articles which contrasted the academic life of the American high school student with that of the Russian student:

The general tenor of the articles was that Soviet secondary school students received a better education because of emphasis on hard work, respect for the intellectual life, plenty of science, and not too much social life (39, p. 304).

This emphasis, coupled with the concern of the public, brought about a clamor for reappraisal of the high school curriculum in the light of unmistakable scientific crisis. Those who advocated extensive science education observed that the elective system in the high school enabled students to evade almost all the science courses in favor of less

intellectually demanding courses. This, they felt, resulted in students with a poor science background who were less likely to choose science as a career and thus help meet the Soviet challenge.

The humanities advocates felt that a strong scientific emphasis would be of very little value to a large majority of the students as most would either drop out of school before graduation or go into some area of work other than science. Their concern was the education of the "whole child rather than merely the development of his technological abilities" (39, p. 305).

Lee saw the answer as being a combination of better science and humanities:

Since the world does not consist merely of the intellectual and the beautiful, or of only the grossly physical, but is rather a combination of the elements, an education in the humanities without an education in science or vice versa, will deprive the learner of an adequate concept of reality (39, p. 306).

Bortner (9) saw the post-sputnik controversy as resulting in rather widespread agreement that while survival depended upon science education, democracy, individual liberty, and peace depended upon an education of wide range and variety. He advocated a curriculum built around the problems of everyday life which he called the experience core curriculum. Some of the characteristics of this curriculum were lack of concern for subject matter lines, merging of teaching and guidance, cooperative planning by teachers and

pupils, large blocks of time, and well-qualified core teachers assisted by a group of subject-matter teachers to whom individual students may be referred.

In addition to increasing pupil knowledge in mathematics and science, Bortner saw the core curriculum as a means of identifying the pupils who showed a strong interest and aptitude in science and as encouraging a scientific, problem-solving approach to learning.

Fisher, in a discussion of current curriculum needs in the area of science, stated, "No longer do we need a high-school curriculum centered around traditional language arts programs" (20, p. 11).

She stated that some educators placed greater emphasis on social studies and athletics than on science, while the world of work was becoming more highly technicalized. This, Fisher felt, could be remedied by the establishment of a "uniform required six-year mathematics and science curriculum for every boy and girl in America" (20, p. 9).

Riddle, commenting on the threat posed by the science education system, stated,

No one can doubt that the threat has become greater, nor that more of our people are partly aware of it. The question that now seems of paramount importance can be stated in one of two ways: Is that threat adequately comprehended by our leadership in education? Or, do the educational measures we are now taking seem likely to protect us adequately against that threat (50, p. 180)?

In answer to these questions, Riddle called for the teaching of at least three sciences and more and better mathematics to a much higher percentage of high school pupils. He questioned the Conant report, which he cited as advocating four years of English, three or four years of history, and at least one year of foreign language for the academically talented. He considered it to be so heavily loaded toward the social subjects as to slight science.

Riddle sums up these thoughts as follows:

Is softness in our secondary school curriculum justifiable in the light of the present threat, mode of attack and strength of our opponent. . . . How much longer dare we gamble the fortunes of western civilization on the proposition that the scientific age is still alien and remote (50, p. 183)?

Gross stated the opinion that the lack of precision in American public education was the result of the "preoccupation with the faceless fellow whom we call the average student" (29, p. 41). He defended the practices of ability grouping and special emphasis on gifted students and felt that the average students were so numerous that they could hardly be ignored or overlooked. He further suggested vastly increased topical content and more college level work for the most able high school students. Gross referred to high school courses such as driver education as "certified gold-plated frills" (29, p. 42).

Althouse (2) expressed the belief that the practical arts should move ahead with the scientific advances of the

day. He felt that the imaginations of the youth had been aimed into the future by the recent scientific advancements. In calling for change in teaching the industrial arts, he said,

The educational, economic, cultural, and scientific advancement of our nation will come about through the development of these imaginations and not through a Noah's Ark load of superior necktie racks and spun pewter ash trays (2, p. 2).

Norris (45), in answer to the charge that America was spending too much educational time and money on frills, fads, and mediocrity, quoted a dictionary definition of mediocrity as "moderate excellence," or the ordinary. While recognizing the need for a program that would challenge the minds of superior students, he expressed the concerns of many educators about the dangers of overreaction as follows:

Will our guidance counselors succumb to the demands of parents that their children be channeled into advanced courses of math and science . . . regardless of their ability to profit by such training? Will the industrial and practical arts subjects be relegated to educational junk heaps. . . . Are all our students now to become scientists and engineers (45, p. 53)?

Norris contended that an adequate share of the school tax dollar must be invested in the ordinary student who would be the future industrial trade and commercial employees, whose productivity, purchasing power, earnings, and investments were vital to a strong economy.

Sparks (57) saw industrial arts shops basically as laboratories of applied science and mathematics with great

potential when combined with certain mathematics and science courses. McKenzie, in a comparison of industrial arts course offerings in Louisiana with eight states, concluded,

Although the need for technical courses such as basic electricity and radio-electronics has increased significantly in recent years, due to the rapid expansion of the electronics industry, industrial arts course offerings have failed to keep pace (40, p. 60).

He found only one course, basic electricity, which ranked in the top ten on the eight-state average. In Louisiana, no electronics course ranked in the top ten. McKenzie (40), therefore, recommended that more depth in content should be stressed on the high school level in courses more typical of modern industry.

Wright saw the need for strengthening both mathematics and science offerings, but felt that it should not be done at the expense of the practical arts. He said,

We surely know that our society today is basically industrial in nature and that industrial arts is usually offered as general education. It is an interpretation of industry through manipulative experiences. It seems logical that this phase of general education is just as important for fast learners as for slow learners (62, p. 224).

Others, such as Johnson, called for balance in the curriculum. He considered a curriculum balanced when physical, social, and humane materials were in their proper proportion and their inter-relations were clearly established. Emphasis placed upon mathematics and science was seen as a threat to this balance.

One demand perhaps more implied than clearly stated is that our secondary schools produce forthwith if not retroactively, an army of embryo scientists--mathematicians and physicists chiefly. . . . This is the danger, that we shall weaken the bastions of our spirit by presuming to strengthen the bastions of our fist (33, p. 25).

The Committee on Curriculum Planning of the National Association of Secondary School Principals also stressed the importance of keeping a balance in the secondary school program. They expressed this as follows:

The demands for increased emphasis in the quality and quantity of our instructional program in science, and mathematics, must not distract from the accent on English, social studies, foreign languages, and other important areas of study. At the same time, we must review the entire program of studies to determine the extent to which each provides essential content in effective education (13, p. 265).

Hilberry (31) saw "sputnik" as a threat because it made plain that America was no longer peerless in science and technology. He said, "At last, I think America understands that we are not playing games at which we are infallible. The dead voices of the Sputniks tell us otherwise."

Smith, in a discussion of basic education, sums up the feelings of many educators of the post-sputnik era as follows:

In the agonizing reappraisal of American education which has been going on since Sputnik, more and more parents and educators are coming to accept the necessity for a stronger academic program in the elementary and high schools. . . . While it is true there is danger in working a child beyond his capacity, it is somewhat surprising that more educational psychologists do not stress the other side of the coin: that

nothing is more satisfying and pleasurable to a child or youth than to accomplish something through hard work which he was not sure he was capable of accomplishing (55, p. 13).

Wooley (61) questioned the suggestions of several groups about what should be done to the high school curriculum after the launching of Russia's "sputnik."

Although some had suggested that all subjects other than academic ones be dropped from the high school curriculum and that a straight academic program--basic and advanced--be required of all students, he disagreed. Wooley felt that 85 to 90 per cent of the high school students would not succeed under this plan.

Another suggestion was to establish separate schools--one for the college bound and academically gifted and others for those for whom secondary education is terminal.

Wooley saw two problems with this approach. First, universal public education must be sacrificed to achieve desirable standards. Second, the comprehensive high school must be sacrificed for various other kinds of high schools in order to realize higher standards of achievement, particularly for the academically gifted.

He expressed the feeling that we cannot choose between educating a few people exceedingly well and educating many people less well, but we must achieve both quality and quantity in public education in order to survive. Wooley appeared to express complete agreement with James B. Conant

that both quality and quantity can be achieved within the framework of the present comprehensive high school and that both were being achieved in some of the best comprehensive high schools.

The Conant Report

One of the most widely discussed studies of this period was the Conant report, The American High School Today. John B. Gardner of the Carnegie Institute praised the Conant report as being "a positive and constructive approach toward the improvement of curriculum and organization of the nation's schools" (14, p. xi).

The Conant report was made in 1958, after a study of some forty schools in thirteen states. Only schools considered of sufficient size to provide an adequate education for all types of youth were included. Several recommendations for education were made.

Conant (14) suggested a general education program involving nine or ten courses with homework to be taken in four years and occupy more than half the time of some students, whatever their elective program. He suggested graduation requirements which included four years of English, three or four years of social science, one year of mathematics, one year of science, and seven electives, either of an academic nature, or of a design which helped to develop a marketable skill.

In reference to ability grouping, Conant said,

I have become persuaded . . . that some degree of grouping in terms of ability in the English and history classes is in the best interest of all concerned. The same would be true for the science, mathematics, and foreign language courses if these are elected by many students who do not have considerable academic ability (16, p. 346).

In reference to vocational education, Conant said,

To my mind, the great majority of high school students should be directing their studies toward some definite end. The vocational goal may change as the student matures, but those who have a goal are far better off than others (16, p. 348).

Conant reported the views expressed by the 1958 Washington Conference on Education of the Academically Talented. This group strongly advocated that four full years be devoted to the study of a single foreign language for the academically talented. They recommended four years of English in high school with more emphasis upon close articulation in elementary school, junior high school, high school, and college. They further recommended that special courses in creative writing, literature, and reading be initiated for the academically talented.

In the area of social studies, at least three years were suggested under the guidance of exceptional teachers. In science, a two or three year sequence in physics, chemistry, and biology was recommended, while in mathematics, at least three years were seen as desirable for the academically talented youth.

Conant (16) believed that identification and education of the academically talented students was a matter of special interest. He believed that the academically talented should be identified in the eighth grade and be persuaded to take a tough program of mathematics, science, and foreign language. Also, they should be guided to enter tough programs in a university or college, and if they have limited means, enabled to do so by means of a scholarship. He did, however, express an unwillingness to go along with those who would limit their concern to some 15 to 20 per cent of the youth who may be classified as gifted. Conant also rejected the idea of placing gifted youth in separate schools, whether they be labeled academic, scientific, classical, or college preparatory. He stated his belief that a satisfactory course of study for bright boys and girls could best be achieved in a public high school of a comprehensive type. With proper organization and good guidance he felt that a very large percentage of youth would elect a course of study which would challenge their intellectual capacity.

Recent Research on the Secondary School-College Relationship

The decade since "sputnik" has seen many new emphases in all areas of secondary education. Many attempts have been made to make education relevant to modern technological society. Along with this has come a re-examination of the relationship between high school curriculum and college

success. Although most research of the first half of the twentieth century discounts the value of a particular group of high school courses as preparation for college, the current research in this area shows conflicting results.

Writers such as Boone (8) found no significant difference when students were compared on the basis of curriculum followed in high school. Powell (47) found that high school English grade-point average contributed little as a predictor of college success when other predictors were available.

Campbell (10), on the other hand, found that students with four units of high school English achieved significantly higher grades in college than those with few high school credits in this area.

Iglinsky (32) found that students taking the college preparatory high school curricula were apt to be more successful in college than those with a non-college preparatory high school background. Barron (5), however, found no significant difference as related to curriculum followed in high school.

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CHAPTER III

PROCEDURES OF THE STUDY

Introduction

This study investigated the relationship of a practical arts high school curriculum as opposed to a college preparatory high school curriculum to performance in academic foundation college courses. In order to obtain a population that could be considered representative of high school students attending state colleges in the northeast Texas area, three universities--East Texas State University in Commerce, Texas; North Texas State University in Denton, Texas; and Stephen F. Austin State University in Nacogdoches, Texas--were included in the study. Only those students who graduated from high school in 1967 and who continue uninterrupted through the academic foundation college courses were considered. No distinction was made as to the sex of the student.

The 1967 graduates were chosen for this study first because they had now been enrolled at the university a sufficient length of time to complete the academic foundation college courses. Secondly, one of the universities included in the study no longer required the American College Testing Program (hereafter referred to as ACT) composite score for college entrance after the 1967 spring semester.

Procedures for Selecting Samples

In August, 1970, permission for the use of students' permanent records was solicited by a letter from the candidate's faculty advisor to the appropriate administrator of each of the three universities (see Appendix A). Assurances were given that comparisons between students would be made only on the basis of high school background. Further, no distinction would be made in the statistical treatment of data as to the university attended.

Students were grouped into one of three groups as determined by the number of non-required high school units they presented for college entrance in each of two areas. These areas were classified as either practical arts or academic. Texas Education Agency Bulletin No. 615, Principles and Standards for Accrediting Elementary and Secondary Schools and Descriptions of Approved Courses, Grades 7-12 (6), designated required courses in grades 9-12 as being three units of English, one unit of world history, one unit of American history, one-half unit of government, two units of mathematics, and two units of laboratory science. As sixteen units were required for graduation, six and one-half units may be considered non-required high school units. Only those non-required high school units presented for college entrance which could be classified as either practical arts or academic were considered for placing students into a particular group.

For the purpose of classification, non-required high school units in the areas of industrial and vocational education, home economics, commerce, and agriculture were considered to be of a practical arts nature. Non-required units in the areas of English, foreign language, mathematics, science, and social studies were considered as being of an academic nature.

The students were placed into one of three groups--academic, dualistic, or practical arts--on the basis of their particular distribution of non-required high school units. Students with three or more non-required academic high school units and no more than one non-required practical arts high school unit were classified as Group I, or academic students. Students with at least two non-required academic high school units and at least two non-required practical arts units were classified as Group II, or dualistic students. Finally, students with at least three non-required practical arts high school units and no more than one non-required academic high school unit were classified as Group III, or practical arts students.

In order to insure an adequate sample size, it was determined that the smallest of the three groups should have a minimum of 100 students. This was assured by continuing the sampling process in each of the three universities until the smallest of the three sub-groups contained thirty-four students.

The smallest sub-group at each of the three universities was found to be the practical arts sub-group, with 34 students. This resulted in a total of 102 practical arts students in Group III. The academic group, Group II, ranked second in size, with a total of 116 students. The East Texas State University academic sub-group contained 37 students. The North Texas State University academic sub-group had 38 students, and the Stephen F. Austin State University academic sub-group included 41 students. The dualistic group, Group I, was the largest in size with an overall total of 153 students. The East Texas State University dualistic sub-group contained 52 students. The North Texas State University dualistic sub-group had 49 students, and the Stephen F. Austin State University dualistic sub-group contained 52 students. This resulted in a total sample size of 371 students. The distribution among the various sub-groups is shown in Table I.

TABLE I
DISTRIBUTION OF STUDENTS BY SUB-GROUP

Group	East Texas State University	North Texas State University	Stephen F. Austin State University	Totals
I	37	38	41	116
II	52	49	52	153
III	34	34	34	102
School				

Procedures for Collecting Data

Permission to use students' permanent records was requested and received from the dean of admissions and records at East Texas State University. A list of 1967 high school graduates entering East Texas State University as beginning freshmen during the fall semester of 1967 was obtained. This list was then compared with the names of students enrolled at East Texas State University during the fall semester of 1970. The names of 742 students were found on both lists.

The records of these students were then checked to insure the availability of high school transcripts, ACT composite scores, and grades in academic foundation college courses. The names of 693 students from the 1967 freshman class were found who were enrolled during the 1970 fall semester at East Texas State University and whose files contained all necessary data.

Since a minimum sample of 100 from a possible 693 students was required, a sample was selected systematically, beginning at random and including every seventh individual. This was done in order to insure a representative sample of the entire group of names. The random starting point was achieved by placing the twenty-six letters of the alphabet in a container and drawing out one letter. The letter "N" was drawn first. It was then replaced and the letter "B" was drawn. Since reference to the list yielded no name with

this combination of letters, the first name past this point on the alphabetical listing became the starting point. This same starting point was used for the sampling procedure in the other two universities.

A special form was developed for collecting the data on the individual students (see Appendix B). The students' high school transcripts were examined and the number of non-required high school units in the academic and practical arts areas were recorded. From this information, each student was classified into one of the three groups--academic, dualistic, or practical arts. The ACT composite scores were then recorded from the students' permanent record card. Grades in the academic foundation college courses were then recorded.

Grades in academic foundation college courses were converted to respective numerical values based on a four-point system of "A," four points; "B," three points; "C," two points; "D," one point; "F," no points. These numerical values were then totaled and a grade-point average found.

Permission to use students' permanent records was requested and received from the vice president of academic affairs at North Texas State University. A list of 1967 high school graduates entering North Texas State University as beginning freshmen in the fall semester of 1967 was obtained. This list was then compared with the names of students enrolled at North Texas State University during the fall

semester of 1970. The names of 1,523 students were found on both lists.

The records of these students were then checked to insure the availability of high school transcripts, ACT composite scores, and grades in academic foundation college courses. The names of 1,372 students from the 1967 freshman class at North Texas State University were found who were enrolled during the 1970 fall semester and whose files contained all necessary data.

A sample was selected systematically from the list of 1,372 names, beginning at random and including every thirteenth individual until the minimum number of 34 was obtained for the smallest sub-group. This was done to insure a representative sample from the entire group of names. The starting point for the sampling process was the same as that previously described. The data from these students' permanent records were then recorded on the information forms.

Permission to use students' permanent records was requested and received from the registrar at Stephen F. Austin State University. A list of 1967 high school graduates entering Stephen F. Austin State University as beginning freshmen during the fall semester of 1967 was obtained. This list was then compared with the names of students enrolled at Stephen F. Austin State University during the fall

semester of 1970. The names of 716 students were found on both lists.

The records of these students were then checked to insure the availability of high school transcripts, ACT composite scores, and grades in academic foundation college courses. The names of 627 students from the 1967 freshman class at Stephen F. Austin State University were found who were enrolled during the 1970 fall semester and whose files contained all necessary data.

A sample was selected systematically beginning at random and including every seventh individual until the minimum number of 34 was obtained for the smallest subgroup. This was done in order to insure a representative sample of the entire group of 716 names. The starting point for the sampling process was the same as previously described. The data from these students' permanent records were then recorded on the information forms.

Procedures for Treating Data

The data compiled from students' records were entered on computer worksheets and later transferred to computer punch cards for processing by the computer center at North Texas State University. Analysis of covariance was the statistical treatment used to test Hypotheses I through III because of its ability to detect significant differences in the criterion variable and its ability to control the influence

of other variables upon the criterion variable. The level of significance was established at the .05 level.

The analysis of covariance, according to Roscoe (5), is a blending of regression and analysis of variance which permits statistical rather than experimental control of variables. This is equivalent to matching the various experimental groups with respect to the variable or variables being controlled. Use of analysis of covariance requires a suitable control variable such as I.Q. scores, achievement test scores, or previous course grades which are known to be correlated with the criterion variable.

Because of availability and value as predictors of college success, ACT composite scores were used as the control variable in the analysis of covariance design. The American College Testing Program is of fairly recent origin, as it was developed in 1959. Brown and Wolins (1) studied 4,597 freshmen who attended Iowa State University. The ACT sub-test scores, as well as composite scores, were analyzed statistically to determine their value as predictors of academic achievement. Findings indicated that the ACT composite was a good predictor of college success. Also, the ACT was found to be a good measure of scholastic aptitude for sub-groups of students such as engineering or premedical majors. Libby (4) observed that ACT mathematics scores and the ACT composite scores generally showed the highest

correlation with first semester grade-point averages for engineering and industrial technician majors.

Foster and Danskin (3) published the results of three studies at Kansas State University which investigated the relationship of ACT scores alone and in combination with other predictors such as high school grades. Results indicated that ACT scores alone predicted about 35 to 50 per cent of the variation in grades obtained. Davis (2) found the selection test used by the American College Testing Program to have a predictive validity of about .50 to .60 for the criterion of individual grade-point average in the freshman year. According to Roscoe (5), a predictive validity of .64 is considered good. The user of ACT composite scores can also be assured that they were given under carefully controlled conditions.

For this study, the random sample was drawn and divided into three groups on the basis of high school units presented for college entrance. American College Testing Program composite scores were selected for the control variable due to their correlation with the criterion variable. The grade-point averages in those academic foundation college courses required of students in all areas of specialization in the universities studied were determined. These courses included twelve hours of English, six hours of history, six hours of government, six hours of laboratory science, and six hours of mathematics, science, or foreign language.

The sums of squares between groups, within groups, and for total were calculated, along with their respective degrees of freedom. These calculations were completed for both criterion and control variables. The sums of products between groups, within groups, and for total were calculated, as were the adjusted sums of squares, degrees of freedom, and mean squares for the criterion variable. The calculated F value was then compared to the tabled F (5) at the desired level of significance and for the appropriate degrees of freedom in order to determine whether or not the hypothesis was tenable.

In the analysis of covariance, the following formulas were used to determine deviation values:

For the total sample:

$$\Sigma Y^2 = \Sigma Y^2 - \frac{(\Sigma Y)^2}{N}.$$

For within subgroups:

$$\Sigma Y^2 = \Sigma Y^2 - \left[\frac{(\Sigma Y_a)^2}{k_a} + \frac{(\Sigma Y_b)^2}{k_b} + \frac{(\Sigma Y_c)^2}{k_c} \right],$$

where

Y = GPA in required college courses

X = ACT scores

a = academic students

b = dualistic students

c = practical arts students

k = number in group.

In a similar fashion, the sums of squares of the deviations away from the means for the ACT composite scores (X) were determined.

The deviation form of the crossproduct between GPA in academic foundation college courses and ACT composite scores was determined as follows:

For the total sample:

$$\Sigma xy = \Sigma XY - \frac{(\Sigma X)(\Sigma Y)}{N}.$$

For within subgroups:

$$\Sigma xy = \Sigma XY - \left[\frac{(\Sigma X_a)(\Sigma Y_a)}{k_a} + \frac{(\Sigma X_b)(\Sigma Y_b)}{k_b} + \frac{(\Sigma X_c)(\Sigma Y_c)}{k_c} \right].$$

The F-ratio was calculated from

$$F = \frac{MS'_{by}}{MS'_{wy}} \text{ with df} = (k - 1), (N - k - 1).$$

Although no hypothesis was made as to the relationship between ACT scores and grade-point averages in academic foundation college courses, a Pearson product-moment correlation was computed for each of the three groups and for the total sample and the results were reported.

The formula used to tabulate the Pearson product-moment coefficient of correlation was as follows:

$$r = \frac{N \Sigma XY - \Sigma X \Sigma Y}{\sqrt{N \Sigma X^2 - (\Sigma X)^2} \sqrt{N \Sigma Y^2 - (\Sigma Y)^2}},$$

where

r = correlation between GPA in academic foundation
college courses and ACT composite scores

N = number of scores

X = GPA in academic foundation college courses

Y = ACT composite scores.

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CHAPTER IV

PRESENTATION AND ANALYSIS OF THE DATA

Introduction

The data obtained for statistical treatment in this study were related to three major areas: non-required high school units presented for college entrance, ACT composite scores, and grade-point average in academic foundation college courses. Students were grouped into one of three groups on the basis of the non-required high school units presented for college entrance. (See Table II.)

TABLE II

COMPOSITION OF GROUPS BASED UPON NON-REQUIRED HIGH SCHOOL UNITS PRESENTED FOR COLLEGE ENTRANCE

High School Units	Academic (Group I)	Dualistic (Group II)	Practical Arts (Group III)
Academic	Three or more	Two or more	No more than one
Practical Arts	No more than one	Two or more	Three or more

Students who presented two or more non-required academic high school units and no more than one non-required practical arts high school unit were classified into Group I. This group was referred to as the academic group. Students who presented two or more non-required academic high school units as well as two or more non-required practical arts high

school units were classified into Group II. This group was called the dualistic group. Finally, students who presented no more than one non-required academic high school unit along with two or more non-required practical arts high school units were classified into Group III. This group was called the practical arts group.

The three groups were compared by the analysis of covariance on a basis of the mean grade-point average in the academic foundation college courses required of all students attending the three universities studied. In order to compensate for possible existing differences in ability among the three groups studied, the mean ACT composite score of each group was introduced as a control variable in the analysis of covariance design.

Raw data relative to high school background, ACT composite scores, and grade-point average in academic foundation college courses were entered on computer punch cards for statistical treatment by the Computing Center, North Texas State University, Denton, Texas.

Data Related to the Analysis of Covariance
of Mean Grade-Point Average of
Groups I, II, and III

The means and standard deviations of ACT composite scores of the three groups are reported in Table III. These data revealed a mean ACT composite score of 20.8276 and a standard deviation of 3.6195 for Group I. The mean ACT

TABLE III

SUMMARY OF MEANS AND STANDARD DEVIATIONS OF ACT COMPOSITE SCORES FOR GROUP I, GROUP II, GROUP III, AND TOTAL SAMPLE*

Group	Number of Observations	Mean ACT Score	Standard Deviation
I	116	20.8276	3.6195
II	153	20.4902	4.1788
III	102	18.7059	4.0040
TS	371	20.1051	4.0480

*Referred to as Group TS.

composite score for Group II was 20.4902, with a standard deviation of 4.1788. Group III had a mean ACT composite score of 18.7059 and a standard deviation of 4.0040. The mean ACT composite score for the total group, Group TS, was 20.1051, with a standard deviation of 4.0480.

The academic group obtained the highest mean ACT composite score with the dualistic group second, and the practical arts group third. The standard deviation from the mean for each group showed the greatest deviation within the dualistic group. The practical arts group had the second largest deviation. The academic group had the smallest standard deviation. The academic group may then be considered to be the most homogeneous of the three groups with respect to ability as indicated by the ACT composite score. In order to determine whether significant differences existed among the mean grade-point average of the three groups,

the data were subjected to further analysis. The means and the standard deviations for college grade-point average for the three groups are reported in Table IV. These data revealed a mean grade-point average for Group I of 2.3383

TABLE IV

SUMMARY OF MEANS AND STANDARD DEVIATIONS OF GRADE-POINT AVERAGE IN ACADEMIC FOUNDATION COLLEGE COURSES FOR GROUP I, GROUP II, GROUP III, AND TOTAL SAMPLE

Group	Number of Observations	Mean Grade-Point Average	Standard Deviation
I	116	2.3383	0.5444
II	153	2.3496	0.6576
III	102	2.1372	0.5713
TS	371	2.2877	0.6062

with a standard deviation of 0.5444. Group II had a mean grade-point average of 2.3496, with a standard deviation of 0.6576. Group III had a mean grade-point average of 2.1372 with a standard deviation of 0.5713. The mean grade point average for the total group was 2.2877, with a standard deviation of 0.6062.

On the basis of grade-point average in academic foundation college courses, the dualistic group ranked first. The academic group ranked second in mean grade-point average, and the practical arts group ranked third. The dualistic group had the largest deviation from the mean, while the practical arts group ranked second. The academic group

again had the smallest deviation from the mean when compared on the basis of grade-point average in academic foundation college courses.

Analysis of Covariance

It was predicted in Hypotheses I, II, and III that a significant difference would be found among the mean college grade-point averages of the three groups considered in the study. Table V shows the analysis of covariance residuals from a comparison of the three groups on the basis of grade-point average in academic foundation college courses.

TABLE V

ANALYSIS OF COVARIANCE BETWEEN THE MEAN GRADE-POINT AVERAGE OF GROUP I, GROUP II, AND GROUP III

Source of Variation	Sums of Squares	df	Mean Square	F Ratio
Difference	0.4609	2	0.2325	0.8128*
Within	104.9609	367	0.2860	
Total	105.4258	369		

*No significant difference at the .05 level.

In order to compensate for possible pre-existing differences between the groups, ACT composite scores were introduced into the analysis of covariance design as the control variable.

Hypothesis I stated that students with three or more units in non-required academic high school courses and no

more than one unit in non-required practical arts high school courses would achieve a significantly higher adjusted mean grade-point average in academic foundation college courses than would students with three or more units in non-required practical arts high school courses and no more than one unit in non-required academic high school courses. The analysis of covariance of the mean college grade-point average produced an F value of .8128, which was far short of the tabled F value of 3.00 required at the .05 level of confidence. Therefore, Hypothesis I was rejected.

Hypothesis II stated that students with three or more units in non-required academic high school courses and no more than one unit in non-required practical arts high school courses would achieve a significantly higher adjusted mean grade-point average in academic foundation college courses than would students with at least two units in non-required academic high school courses and at least two units in non-required practical arts high school courses. The analysis of covariance of the mean college grade-point average produced a ratio of .8128. The tabled value of F required for significance at the .05 level of confidence was 3.00. Thus, Hypothesis II was rejected at the .05 level.

Hypothesis III stated that students with at least two units in non-required academic high school courses and at least two units in non-required practical arts high school courses would achieve a significantly higher mean grade-point

average in academic foundation area college courses than students with at least three units in non-required practical arts high school courses and no more than one unit in non-required academic high school courses.

The F ratio obtained from the analysis of covariance of the mean grade-point averages of the three groups was .8128. As this F ratio did not reach the magnitude of 3.00 required for significance at the .05 level of confidence, Hypothesis III was rejected.

Comparison of Adjusted Means of Groups

Table VI shows a comparison of the mean grade-point average and the adjusted mean grade-point average for each of the three groups. The mean grade-point average of 2.3383 for Group I was adjusted downward to an adjusted mean grade-point average of 2.2882. This change of .0501 represents the

TABLE VI

COMPARISON OF MEAN GRADE-POINT AVERAGE AND ADJUSTED MEAN GRADE-POINT AVERAGE FOR EACH OF THE THREE GROUPS

	Group I	Group II	Group III
Mean GPA	2.3383	2.3496	2.1372
Adjusted Mean GPA	2.2882	2.3229	2.2343
Difference	- .0501	- .0267	+ .0971

adjustment required to equate the groups statistically through the use of ACT composite scores as the control

variable in the analysis of covariance design. In the same manner, the mean grade-point average of 2.3496 for Group II was adjusted downward to an adjusted mean grade-point average of 2.2882. Therefore, an adjustment of .0267 was required in the mean grade-point average of Group II.

The mean grade-point average of 2.1372 for Group III was adjusted upward to obtain an adjusted mean grade-point average of 2.2343. This was an upward adjustment of .0971 for the practical arts group. This upward adjustment for the practical arts group and the downward adjustment for the academic group and for the dualistic group was made in order to compensate for differences in ability as indicated by the mean ACT composite score for each group. This adjustment, according to Roscoe, is "equivalent to matching the various experimental groups with respect to the variable or variables being controlled" (1, p. 254).

Discussion of Non-Hypothesized Data

Although not hypothesized in this study, the data collected were subjected to the Pearson product-moment test of correlation (r) in order to determine the relationship between ACT composite scores and grade-point averages in academic foundation college courses.

The means, standard deviations, value of r , and level of significance between the students' ACT composite scores and grade-point averages in academic foundation college

courses for the academic group (Group I) are shown in Table VII.

TABLE VII

A COMPARISON OF ACT COMPOSITE SCORES AND GRADE-POINT AVERAGE FOR GROUP I STUDENTS
(N = 116)

ACT Composite Scores		Grade-Point Average		r	Level
Mean	SD	Mean	SD		
20.8276	2.3383	3.6195	0.5444	0.4355	.01 LS*

*Significant at the .01 level.

The mean ACT composite score for Group I was 20.8276 with a standard deviation of 2.3383, while the mean grade-point average for this group was 3.6195, with a standard deviation of 0.5444. Comparison of these groups yielded an r value of .4355. An r value of .254 is required for significance at the .01 level. Therefore a significant correlation at the .01 level was found between ACT composite scores and grade-point averages in academic foundation college courses.

The means, standard deviations, value of r, and level of significance between students' ACT composite scores and grade-point averages in academic foundation college courses for the dualistic group (Group II) are shown in Table VIII.

The mean ACT composite score for Group II was 20.4902, with a standard deviation of 2.3496, while the mean

TABLE VIII

A COMPARISON OF ACT COMPOSITE SCORES AND GRADE-POINT AVERAGE
FOR GROUP II STUDENTS
(N = 153)

ACT Composite Scores		Grade-Point Average		r	Level
Mean	SD	Mean	SD		
20.4902	2.3496	4.1788	0.6576	.5932	.01 LS*

*Significant at the .01 level.

grade-point average for the group was 4.1788, with a standard deviation of .6576. Comparison of these groups yielded a coefficient of correlation of .5932. An r value of .254 is required for significance at the .01 level. Therefore, a significant correlation at the .01 level was found between ACT composite scores and grade-point averages in academic foundation college courses for the dualistic group (Group II).

The means, standard deviations, value of r, and level of significance between ACT composite scores and grade-point averages in academic foundation college courses for the practical arts group (Group III) are shown in Table IX.

The mean ACT composite score for Group III was 18.7059, with a standard deviation of 2.1372, while the mean grade-point average for the group was 4.0039, with a standard deviation of .5713. Comparison of these groups yielded a coefficient of correlation of .2364. An r value of .254 is required for significance at the .01 level, and an r value of

TABLE IX

A COMPARISON OF ACT COMPOSITE SCORES AND GRADE-POINT AVERAGE
FOR GROUP III STUDENTS
(N = 102)

ACT Composite Scores		Grade-Point Average		r	Level
Mean	SD	Mean	SD		
18.7059	2.1372	4.0039	0.5713	.2364	.02 LS*

*Significant at the .02 level.

.230 is required for significance at the .02 level. Therefore, a significant correlation at the .02 level was found between ACT composite scores and grade-point averages in academic foundation college courses for the practical arts group (Group III) at the .02 level. The correlation was not significant at the .01 level.

Table X shows the means, standard deviations, value of r, and level of significance between ACT composite scores

TABLE X

A COMPARISON OF ACT COMPOSITE SCORES AND GRADE-POINT AVERAGE
FOR TOTAL SAMPLE
(N = 371)

ACT Composite Scores		Grade-Point Average		r	Level
Mean	SD	Mean	SD		
20.1051	2.2877	4.0480	.6062	.4741	.01 LS*

*Significant at the .01 level.

and grade-point averages for the total group. The mean ACT composite score for the total group was 20.1051, with a standard deviation of 2.2877, while the mean grade-point average for the group was 4.0480, with a standard deviation of .6062. Statistical analysis yielded a coefficient of correlation of .4741. An r value of .254 is required for significance at the .01 level. Therefore, a significant correlation at the .01 level was found between ACT composite scores and grade-point averages in academic foundation college courses for the sample as a whole.

Table XI shows a comparison of the coefficients of correlation of Group I, Group II, Group III, and of the total sample.

TABLE XI

COMPARISON OF COEFFICIENTS OF CORRELATION OF GROUP I,
GROUP II, GROUP III, AND THE TOTAL SAMPLE

Group Number	I	II	III	Total
N value	116	153	102	371
r value	.4355	.5932	.2364	.4741

Of the four groups tested, the dualistic group (Group II), with an r value of .5932, had the largest coefficient of correlation between ACT composite scores and grade-point averages in academic foundation college courses. The total group with an r value of .4741 ranked second, while the

academic group with an r value of .4355 ranked third. The practical arts group received a low r value of .2364.

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CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Summary

The purposes of this study were twofold: first, to investigate the relationship of a practical arts high school curriculum as opposed to a college preparatory high school curriculum to performance in academic foundation college courses. Second, to analyze this relationship and its implications for high school teachers, counselors, and others interested in preparing students of varied interest for maximum success in life.

A review of the literature of the first fifty years of the twentieth century revealed a definite trend away from traditional college preparatory programs. However, with the technological advances of the 1950's, came a re-examination of the relationship between high school curriculum and college success. Current research in this area shows conflicting results.

Summary of Methods and Procedures Used to Collect Data

A sample of 371 students from the 1967 freshman class of the three universities was randomly selected. The

students' high school transcripts were examined and the number of non-required high school units in the academic and in the practical arts areas were recorded. From this information, each student was classified into one of three groups-- academic, dualistic, or practical arts. Those students who presented three or more units in non-required academic high school courses and no more than one unit in non-required practical arts high school courses were classified into the academic group. Those students who presented at least two units in non-required academic courses and at least two units in non-required practical arts high school courses were classified into the dualistic group. Those students who presented no more than one unit in non-required academic high school courses and three or more units in non-required practical arts high school courses were classified into the practical arts group.

In order to insure an adequate sample size, it was determined that the smallest of the three groups should have a minimum of 100 students. This was assured by continuing the sampling process at each of the three universities until the smallest of the three sub-groups contained 34 students. This resulted in a total combined group of 102 practical arts students as compared with a combined group of 153 dualistic students and a combined group of 116 academic students.

Students' ACT composite scores and grade-point averages in academic foundation college courses were obtained from the registrar's file at each of the three universities.

The data compiled from students' records were entered on computer punch cards for processing by the computing center at North Texas State University. Because of its ability to detect significant differences in the criterion variable and its ability to control the influence of other variables upon the criterion variable, analysis of covariance was the statistical treatment used to test the three hypotheses. American College Testing Program composite scores were selected for the control variable due to their correlation with the criterion variable. The level of significance was established at the .05 level of confidence.

Although no hypothesis was made as to the relationship between ACT composite scores and grade-point averages in academic foundation college courses, a correlation was computed for each of the three groups and for the total sample, and the results were reported.

Findings

Hypothesis I stated that the academic group (Group I) would achieve a significantly higher adjusted mean grade-point average in academic foundation college courses than the practical arts group (Group III). The analysis of covariance of the adjusted mean college grade-point average

produced an F value of .8128, which was far short of the tabled F value of 3.00 required at the .05 level. Therefore, Hypothesis I was rejected.

Hypothesis II stated that the academic group (Group I) would achieve a significantly higher adjusted mean grade-point average in academic foundation college courses than the dualistic group (Group II). The analysis of covariance of the adjusted mean college grade-point average produced a ratio of .8128. The tabled value of F required for significance at the .05 level was 3.00. Thus, Hypothesis II was rejected.

Hypothesis III stated that the dualistic group (Group II) would achieve a significantly higher adjusted mean grade-point average in academic foundation area college courses than the practical arts group (Group III). The F ratio obtained from the analysis of covariance of the adjusted mean grade-point averages of the three groups was .8128. As this F ratio did not reach the magnitude of 3.00 required for significance at the .05 level, Hypothesis III was rejected.

Non-Hypothesized Data

The data collected were subjected to the Pearson product-moment coefficient of correlation (r) in order to determine the relationship between ACT composite scores and grade-point averages in academic foundation college courses.

A comparison of mean ACT composite scores and mean grade-point averages for the academic group yielded an r value of .4355. An r value of .254 was required for significance at the .01 level. Therefore, a significant correlation was found between ACT composite scores and grade-point averages in academic foundation college courses for the academic group.

A comparison of mean ACT composite scores and mean grade-point averages for the dualistic group yielded an r value of .5932. An r value of .254 was required for significance at the .01 level. Therefore, a significant correlation was found between ACT composite scores and grade-point averages in academic foundation college courses for the dualistic group.

A comparison of mean ACT composite scores and mean grade-point averages for the practical arts group yielded an r value of .2364. An r value of .254 was required for significance at the .01 level and an r value of .230 was required for significance at the .02 level. Therefore, a significant correlation at the .02 level was found between ACT composite scores and grade-point averages in academic foundation college courses for the practical arts group.

A comparison of ACT composite scores and grade-point averages for the total group yielded an r value of .4741. An r value of .254 was required for significance at the .01 level. Therefore, a significant correlation was found

between ACT composite scores and grade-point averages in academic foundation college courses for the sample as a whole.

Conclusions

To the extent that the samplings involved in this study are representative of the whole, the following conclusions may be drawn from the study:

1. No significant relationship exists between particular patterns of non-required high school courses and performance in academic foundation college courses.

2. Students with an academic, or college preparatory, background do not achieve significantly higher adjusted college grade-point averages than do students with dualistic or practical arts backgrounds.

3. Students with high school backgrounds in both practical arts and academic courses achieve the highest adjusted mean grade-point average in academic foundation college courses.

4. American College Testing Program composite scores are not of equal value for prediction of future college success for students of varying backgrounds. These scores are much better predictors of subsequent college success for dualistic students than for practical arts students.

Implications

1. When ACT composite scores and grade-point averages in academic foundation college courses are compared, the dualistic group will achieve the highest r coefficient of correlation. This indicates that ACT scores are more predictive of future college success for this group than for either of the other two groups or for the total sample.

2. When ACT composite scores and grade-point averages in academic foundation college courses are compared, the practical arts group receives the lowest r coefficient of correlation, indicating that ACT scores are a less valid predictor of subsequent college success for this group than for either of the other two groups or for the total sample.

3. Persons responsible for high school curriculum development should consider excess emphasis, either academic or vocational, undesirable. The individual student should be able to choose a blending of the two which better meets his interests and needs.

Recommendations

As a result of this study, the following recommendations are projected:

1. High school teachers and counselors should avoid recommending a course of study consisting entirely of either academic or practical arts courses as being best for all students who plan to attend college. Such factors as individual differences and interests should be considered.

2. In order to meet the individual needs of students, a truly comprehensive high school curriculum should be designed with maximum flexibility and transferability of credits. Even those programs designed specifically for occupational training should provide opportunities for articulation into other programs should the interest and desire of the student change.

3. Since ACT scores have less predictive value for practical arts students, college admissions directors should be wary of strict cut-off points based upon standardized test scores alone. Factors such as personality and character traits, family background, interests, and motivation should also be considered in order to insure that individual students are properly placed.

4. This study should be duplicated with the entire sample drawn from students of the same major field. In this manner, the overall grade-point average could be used as the criterion variable.

5. Future studies should be undertaken to determine the relationship between high school background and success in life of those students who do not attend college or who drop out of college before completing the requirements for a formal degree.

Appendix A

NORTH TEXAS STATE UNIVERSITY

DENTON, TEXAS
75203

DEPARTMENT OF EDUCATION

July 25, 1970

Office of the Registrar
North Texas State University
Denton, Texas

Dear Sir:

This letter is written to ask that Mr. Charles McKenzie, a doctoral student at North Texas State University, might have access to the records of certain students at your university. In his dissertation study it is necessary that he see the records of one hundred to two hundred students at your school in order to compare the success in required college courses between students presenting high school credits in practical arts courses and those with credits in academic courses.

There may well be some advantage to your university of this dissertation study, especially in predicting the college success of your freshman students or prospective students. It will also be to the credit of your school to provide the records on which the study will be based.

All student records will be held in strict confidence. Anonymity of all students will be protected, and the records will be used only in the dissertation study.

I shall greatly appreciate your granting permission for Mr. McKenzie to see the records of these students, who will be selected at random from your freshman class of 1965.

Very truly yours,

Wallace E. Hoffman

Wallace E. Hoffman
Assistant Professor of Education

WEH:sg

Approved
[Signature]

APPENDIX B

Identification Number	ACT Scores	Classification
High School Data		College Data
English _____	English _____	
Math _____	History _____	
Social St. _____	Govt. _____	
Science _____	Science _____	
Foreign Lang. _____	Math, S., or For. L. _____	
I.A., H.E., Ag. _____	Coll. GPA	
Business _____		
Arts & Music _____		
Health & P.E. _____		
Others _____		

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