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ABSTRACT

This report compares the influences of educational practices of the British Isles and the United States on secondary pupil achievement in the basic subject matter areas at each successive grade level. The objective of the study is to test the hypotheses that: (1) significant differences will be found between students' mean achievements in the basic subject matter areas across ability levels; (2) specific periods could be identified wherein students' achievement across ability levels and grade levels for respective countries becomes statistically different; and (3) factors could be identified which influence pupil achievement. Test instruments include the California Achievement Test, Otis Ability Test, a project-developed test, and other data-gathering methods. A few of the major findings are that grade point averages are more significant predictors for student gains and levels of achievement than standardized achievement tests; high ability students consistently gain more than average or low ability students; British high ability students and U. S. average and low ability students show higher levels of achievement in reading than their respective counterparts; U. S. students register higher levels of achievement in language usage and in mathematics. Contents also include research related to this report, a broad overview of educational structure in both countries, and implications and recommendations of the research. (Several pages may be illegible.) (SJM)

A COMPARATIVE STUDY OF THE ACADEMIC ACHIEVEMENTS OF SECONDARY AGE STUDENTS OF THE UNITED STATES AND THE BRITISH ISLES

U. S. O. E. PROJECT NUMBER: 6-1304

Indiana University Foundation
Indiana University
Bloomington, Indiana 47401

REPORT OF

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U.S.O.E. PROJECT NUMBER: 6-1304

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Bangor Technical School, Bangor
Glenlola Girls Grammar School, Bangor
Newry High School, Newry

Scotland:

Glenrothes Senior High School, Glenrothes
Glenwood Junior High School, Glenrothes
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United States:

Clay High School, Oregon, Ohio
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CHAPTER I. INTRODUCTION

Since educational systems beyond one's national boundaries suggest what is educationally possible, comparative studies are valuable in examining these possibilities. Anderson, writing in Education[1] (October, 1963), states that "Every educator will find a study of our educational system in relation to other systems imperative. He will be oriented far better to bring about improvements in the American educational system and to cooperate intelligently in the improvement of education in other parts of the world." As pointed out in the Encyclopedia of Educational Research,[2] "Comparative education means the study and comparison of educational theory and practice in different countries for the purpose of broadening and deepening one's understandings of educational problems." Hilker[3] identified the most important step of the comparative process when he stated: "In the process of comparing, there are the three steps: a) the description of phenomena, b) the (analytic) explication of underlying forces, and c) the comparison in the narrower and specific sense.

.....The third step, i.e. comparison in the narrower sense, is the most important one, and the one least attempted so far. Description and explication actually attain their final value in comparison. In its simplest form, the latter consists of the juxtaposition of quantitative data which reflects decrease, increase or no change. When, however, qualitative differences are under study, it is necessary to seek to find a common denominator, before a decision about the direction of further procedures can be made. This kind of comparison has barely been practiced as yet, but the comparative method hardly deserves its name unless it progresses to this level of operation. In fact, this advance is essential for the recognition of comparative education as a scientific discipline and as a field of significance for practical application in solving many vital issues."

Kozamias[4] pointed out that "Very often comparative educators proceed to indicate the different methods of selection and the different institutional patterns which seek to accomplish this goal. But they very rarely seek to establish whether in fact England or France provides better treatment according to the age, abilities, and aptitudes of a student."

Foshay,[5] writing in the International Review of Education (Volume IX, 1963-64), suggests that large-scale empirical studies on an international plane are feasible, and that such studies can shed light on the nature of educational achievement as related to national cultures and traditions. However, as pointed out in the introduction to Educational Achievements of Thirteen Year Olds in Twelve Countries,[6] "The number of cross-country comparisons of school achievement is small, and the findings limited. Typically, such studies have involved two populations somewhere in the middle of their respective school careers, and achievement has been compared in one school subject."

Thus, while it may be noted that the international comparative technique is a recognized method for educational investigations, its application even to the mid-point of this century has been limited in both the number of studies and the depth of their probings.

With the advent of Sputnik in the late 1950's, the interest and concern of the general public for our educational accomplishments as contrasted with those of other countries were soundly and dramatically heightened. This interest, only naturally, led to many "minute-maid" studies and personal observations by various actual and self-appointed experts in which conclusions were drawn, which, in general, proclaimed the inadequacy of our educational system and contrasted it with European systems in general and English systems of education in particular.

Not unexpectedly many professional educators and even a scattering of "civilians" denied the charges and implications of such claims. As the academic battle lines were drawn, it became obvious that both sides had more smoke than ammunition to support their claims. At this juncture, any thoughtful educators began to look towards comparative studies as a means of separating facts from fiction and, even more importantly, as a technique promising educational improvements for all countries involved. Among the studies which had not heretofore been attempted were those which would compare the influences of educational practices in the British Isles and the United States on pupil achievement in the basic subject matter areas at each successive grade level. The first of these studies "A Comparative Study of the Academic Achievements of Elementary Age Students of the United States and the British Isles,"[7] (U.S.O.E. Project Number 2177) was undertaken and completed during the period 1963-1965. In 1966 "A Comparative Study of the Academic Achievement of Secondary School Students of the United States and the British Isles" was initiated. This publication reports the findings of this investigation.

B. Objectives.

This study proposed to test the hypotheses that (1) significant differences would be found between students' mean achievement in the subject matter areas of arithmetic, reading, English-usage, and science (a) among British and American secondary school students of high, average, and low ability, and (b) attending public and private institutions; (2) specific periods could be identified wherein respective students' achievement across ability levels and grade levels for respective countries became statistically different in the areas of reading, arithmetic, English-usage and science; and (3) that specific factors could be identified which influence pupil achievement and, further, the degree

to which individual factors may or may not be a significant influence on achievement could also be ascertained. A further and separate objective of this study was to assess the significance of differences in academic progress, through mean achievement, for a separate sample of approximately 300 students involved as fourth, fifth, and sixth graders in a previously supported elementary study. These students during the execution phase of this study were eighth, ninth and tenth graders.

The collection, tabulation, and analyses of the data in the support or rejection of the above hypotheses may provide evidence to warrant further study of the associated factors or practices that produce the differences in achievement. Further, it is believed that the evidence collected in this project will stimulate additional research in these or other subject-matter areas leading to the identification of possible educational practices that could improve secondary education in the United States.

CHAPTER II. RELATED RESEARCH

In the development of this project particular attention has been given to research in the cross-cultural study and comparison of academic achievement between English-speaking countries. Of special significance is A Comparative Study of the Academic Achievement of Elementary Age Students of the United States and the British Isles, (U.S.O.E. project 2177)[1] concluded by staff members of this project. This study compared the academic achievement of British and United States' pupils in the subject matter areas of arithmethic, reading, and English-usage in grades one through six; of high, average, and low ability, attending public and private institutions. Among the signficant findings of this study were: (1) in all subject matter areas and categories, as might be anticipated, the British pupils were at a higher level of achievement at the conclusion of the first grade. Further, the British pupils achieved higher scores in nearly all subject matter areas and categores, in grades one through four. However, by grades five and six, United States' pupils were achieving at approximately the same level on the reading tests and at higher levels on most of the English-usage tests. (2) On a comparative basis, the British pupils were strongest in arithmetic and the United States' pupils in English usage. (3) While differences in achievement by ability groupings did occur, as anticipated, the margin between high ability and average ability groupings was greater for the British sample.

It appears to be characteristic of most other studies reviewed to devote themselves to a single subject at a single grade level without attempting to control for community size or socio-economic differences, or differences between students of varying abilities in both public and private institutions. Conclusions have not always been the same. For example, Buswell[2] in 1958 reported that English pupils made significantly higher scores than California pupils of the same chronological age when using an adapted form of a British achievement

test. Using the same British tests that Buswell used, Tracy[3] in 1959 reported that white eighth grade North Carolina pupils at the same stage (near completion) of arithmetic study as their British counterparts received approximately the same mean scores. Bogut[4] replicated Buswell's study in the elementary schools of St. Paul, Minnesota, and noted that the St. Paul students had lower means on the computational, and higher and more comparable means with the British sample on the problems part of the arithmetic achievement test. He, therefore, concluded that these scores reflected a meaningful approach to the teaching of arithmetic in American schools.

Duncan[5] compared the teaching of arithmetic in the United States and New Zealand (1961) by administering both a standardized and a teacher-made test to 200 twelve year olds. The American pupils achieved slightly higher results and he also concluded that the more meaningful teaching methods of the American teachers produced the better results in both computations and problem-solving.

William A. Brownell[6] in his "Instruction in Lower-Grade Arithmetic in English and Scottish Schools," stated his opinion that English and Scottish children in the first six grades are learning more arithmetic than are American children. He arrived at the conclusions that (1) we have seriously underestimated the attention span of school beginners; (2) likewise, we have seriously underrated the "readiness" of school beginners for systematic work in arithmetic; and (3) we can safely ask children in the lower grades to learn much more arithmetic than we are now asking them to learn.

Husen, Bloom, Anderson and others (1967)[7] reported results from a major international study of achievement in mathematics. Pupils from twelve countries participated in this study. While reports of the study stress that it was not intended to be competitive in nature, results indicating that Japanese and

Belgium thirteen year olds scored highest on the international test, and the United States and Swedish scored lowest, have been of great interest. Almost of equal interest have been the findings that indicate the greatest increase in score between thirteen year olds and the pre-university mathematics populations were registered by French and English pupils with the United States showing the lowest gain score. Among the significant conclusions which could be drawn from this study are the following:

1) All school systems in all the countries evaluated had almost identical scores on the international test up to the end of the period of universal education in their respective countries.
2) Test scores in mathematics increase with increases in the amount of homework assigned students.
3) High scores in mathematics are associated with interest in mathematics.
4) Boys tended to do better than girls in mathematical achievement, with boys attending boys' schools achieving the highest of all.
5) There were consistent positive correlations between the mathematics scores of the pre-university students and the type of training their teachers had received.

Anderson, Personke, and others[8] (1963) reported a study entitled Comparisons of the Reading and Spelling Achievement and Quality of Handwriting of Groups of Scottish and American Children, which gives the results of an investigation to obtain evidence of the different educational practices in Scotland and the U.S.A. Samples of the school populations were taken in West Lothian, Scotland; Jackson, Michigan; and Pinellas County, Florida, at ages seven, eleven, and fourteen years. Tests in handwriting, spelling, oral reading, paragraph and word meaning were administered to each group, and the results compared. At age seven the Scottish

children were found to have a higher standard of attainment on all tests. At age eleven much the same results were found; however, at age fourteen, the American students were significantly higher in the paragraph and word meaning tests. As the tests were of American origin it was possible to compare the achievement of the Scottish pupils with the American norms.

In 1958, Pidgeon[9] compared the performance of eleven-year-old children from Australia and England and Wales on reading, arithmetic, and non-verbal ability tests. In each of these tests, it was found that the standard deviation of test scores obtained by the English and Welsh children was considerably greater than that of the Australian sample. It was "cautiously" concluded that the results might be due to differences in the methods and approach employed in teaching the different subjects and not to any overall differences in organizing classes by "streaming" or other methods.

Lloyd and Pidgeon[10] reported another investigation in 1961 in which a non-verbal test, standardized in England, was given to groups of African, European and Indian children in Natal, South Africa, revealed considerably lower standard deviations in that country. It was observed that the system of class organization employed in Natal meant that "no child can proceed from one class to another unless he can pass the examination set for that class. Such a system inevitably has repurcussions on the methods of teaching employed and the concern of a teacher in Natal is to get as many through the examination as possible, since too many failures might reflect on his efficiency. This leads to mass methods of teaching and to a complete lack of recognition of individual differences." They suggest that the very opposite occurs in England. Teachers are trained to recognize individual differences and to adjust their teaching accordingly, and indeed, the system of streaming is a further aid to this end.

The system employed in Natal is used with all ethnic groups but "its effect is more pronounced with the African and Indian children in view of their larger school classes." The results reported reflected this, in that the standard deviations tended to be smaller with these groups, particularly with the African children.

Several other comparisons have been made utilizing test norms of one nationally developed test for comparing with the achievement of another national group. In 1950 Taylor[11] administered the Metropolitan Readiness Tests to pupils in Fife and Edinburgh, Scotland. These pupils achieved a mean age score approximately one year and two months above the American norm for their age-ability group.

Scholl[12] conducted two studies of this nature. In the first (1960), she administered the paragraph meaning, word meaning, and spelling subtests of the Stanford Achievement battery to groups of English children, age seven, nine, eleven and thirteen. The English pupils performed above the norms on all tests at all ages except the paragraph meaning test where they excelled at age seven only. Her second study investigated the performance of American children, ages seven, nine and eleven; on the Survey Reading Tests of the National Foundation for Educational Research in England and Wales and the Schonell Spelling Test. The samples tested fell below the English norms at all ages.

Elder[13] (1966) reported a study comparing the oral reading of groups of Scottish and American children in the third year of their primary schooling. The Scottish sample was taken from West Lothian, Scotland, and the American sample, from Ypsilanti, Michigan. The purpose was to ascertain whether Scottish children obtain an advantage over American children by being introduced to reading at age five, rather than six and by receiving a greater emphasis on

phonics in beginning reading. The findings of the study indicated the following: (1) The mean score of the Scottish sample was significantly above the test norm of American children of the same age. (2) There were no significant differences in the rate of oral reading between the Scottish and American samples. (3) The Scottish sample read with significantly greater accuracy however. (4) A comparison of the samples with respect to specific types of oral reading errors revealed that substitutions constituted a significantly larger percentage of the total errors of the American sample than was the case for the Scottish sample. Comparisons also showed that mispronunciations were more frequent in the Scottish sample. (5) The Scottish sample had a greater tendency to make substitutions which change meanings than did the American sample.

Teacher status, as a product of environment and cultural pattern, was studied during the period 1952-1957 by Anderson, Anderson, Cohen and Muth.[14] This study evaluated the image of the teacher by adolescent children in four countries: Germany, England, Mexico, and the United States. It was concluded that children's image of teachers is a function of cultural pattern.

Rempel[15] also reported a study comparing the relative status of the United States and Canadian teachers. In his study he compared status on the basis of comparative salaries earned and concluded that the Canadian high school teacher and the United States elementary teacher were comparatively higher than the United States secondary school and the Canadian elementary teacher respectively.

Studies of teachers and teacher education have also been conducted. Dickson, Prediger, Wiersma and others[16] (1965) concluded a study comparing the characteristics of teacher education students in the British Isles and the United States. The principal purpose of this study was to determine: (1) teacher attitude and personality characteristics; (2) general educational preparation; (3) professional

education knowledge; and (4) general intelligence of pre-service teacher education students in both countries. Emphasis was placed upon examining the products of the teacher education programs at various stages in their training. The results of this study were as follows:

1. United Kingdom teacher education students tend to have, generally, as indicated by the test data, higher general intelligence and verbal comprehension than do United States teacher education students.
2. United States students tended to be more learning-centered, while their British counterparts tended to be more child-centered, permissive. Interestingly enough, the findings on which this conclusion is based remained stable over the three stages of preparation (years) examined in the study and held for both elementary and secondary education students.
3. Teacher education students in the United States hold more favorable opinions of administrators and other school personnel than do students in the United Kingdom.
4. United Kingdom teacher education students appear to be better prepared in the academic fields of study measured than U.S. students, except for the area of science, wherein United States elementary education students appear better prepared than their counterparts overseas.
5. The changes in measured academic competencies which occur across the three years of preparation reflect the recency of course work in the particular content area being examined, the basic sequential differences in teacher education curriculum in both nations, and the performances of Scottish and English graduate students.
6. American students appear to be better prepared in the measured areas of professional education than their counterparts in the United Kingdom.

Beauchamp and Beauchamp[17] conducted a study of the likenesses and differences in curricular practices among selected European countries and the United States. From the conclusions of this study the authors listed the following postulates:

1. The choice of curriculum content can be made independent of instructional methods, but the choice of instructional method is dependent upon the nature of the curriculum content.
2. A distinction can be made between curriculum planning and efforts to influence decisions at the level of curriculum planning.
3. Curriculum engineering is markedly facilitated when the arena for planning and implementing are the same.
4. Curriculum implementation is greatly facilitated when planning groups include classroom teachers who must do the implementing.
5. The re-education of teachers about new and potential curriculum content is better accomplished through teacher participation in curriculum planning than by means used when teachers do not participate in curriculum planning.
6. The more removed the curriculum planning function is from classroom teachers, the more restrictive the curriculum is upon the professional judgment of teachers.
7. Planning, implementation, and evaluation constitute an annual curriculum cycle, and the feedback from evaluation plus innovative ideas will produce change in the curriculum with each new cycle.

Palmer[18] reported a study investigating the areas of agreement and disagreement in secondary school algebra in England and the United States. The implications of the findings were as follows: (1) That American teachers, it seems, prefer to emphasize the logical aspect and make abstract definitions at

an earlier stage, and keep away from certain concepts, such as vectors, until the pupils are mature enough to understand their definition in abstract terms. This may make the emphasis ideal for gifted pupils. (2) The trend in England seems to be away from emphasizing the logical aspect and making abstract definitions at an early age. Progress all the time is from practical illustrations by generalizations to the building of simple-systems; but the systems are not set out in abstract form until quite a late stage. The emphasis is on the operations and process rather than any strict logical arrangement until the logic emerges naturally. (3) For a student who is considering a college preparatory algebra program, the list can be presented to illustrate the kind of knowledge, understanding and skill he must have to succeed. (4) The resulting preparation of students in algebra for college placement ought to be a wiser one than if the preparation were made without considering the essentials.

Squire and Appleby[19] reported an investigation comparing curricular and classroom practices in the teaching of English in secondary programs of England, Scotland and Wales and the United States. The study tended to report how British schools differed from the American schools. The major differences in the British schools were a lack of continuity and structure in overall curriculum design, emphasis on creative and expressive activity, de-emphasis on acquisition of knowledge, inculcation of favorable pupil attitudes, and more successful programs for non-academic pupils.

Stephenson[20] (1953) compared data from separate, yet parallel studies and reviews conducted in the United States and in Great Britain on social stratification, education and occupational orientations. One such comparison was made between a study by Himmelweit[21] (1954). He compared 700 thirteen and fourteen year old boys in four grammar and secondary modern schools in the greater London

area with data on 1,000 boys and girls of the same age level in four communities in New Jersey. He was able to compare these studies by dividing the social classes into white-and blue-collar positions and by drawing parallels between Grammar-Modern schools with academic-nonacademic programs in the United States. The data revealed that 51 percent of the Americans and 80.4 percent of the British from blue-collar families were enrolled in nonacademic types of school programs. Although comparisons were not made in any detail with regard to educational aspirations, the author concluded that the same "pulls" were operating in both cultures when the effects of social class were controlled.

Using data from the National Opinion Research Center in the United States (1947), Stephenson also found that 63 percent of the middle-class and 42 percent of the lower-class males in American recommended a college education, as compared with 72 percent of the middle-and 65 percent of the working-class London students who expressed a desire to go to college. There was little doubt in Stephenson's mind that the process of socialization, family structure, life experience, and economic conditions contribute to the differences which exist between the two cultures more than the problem of unequal educational opportunites and utilization of manpower.

Ketcham[22] discusses common educational probelms in the two countries as not arising from the very different educational organization and practice but developing from common philosophical and social ideologies. Three problems are of principle concern. The first of these centers around the worth of using homogeneous grouping in elementary and secondary schools to increase academic achievement. The second common problem discussed is whether compulsory education for all should be extended to age eighteen. The present curriculum in both countries may be failing to meet the needs of adolescents in many areas; this

must be considered along with the labor market's demand for more education. The third problem is concerned with who should go to college. The British education system sends five percent of its students to college while the U.S. sends thirty percent of its students. These numbers are reported inadequate for each nation's need for college graduates.

Wilson[23] reports in the British Journal of Educational Psychology (1953), that in both Britain and America, the use of I.Q. tests in relation to vocational choice has generally established a tendency for the more intelligent children to choose higher ranking occupations. The proportion of children making correct choices according to level of intelligence have been highly similar; it has most often been found in both countries that fifty percent would choose incorrectly, the incorrect choice being more frequently on the ambitious side. Wilson feels that such investigations, have, however, been too few in number and limited in scope to dispel the impression that, throughout most of the present century, American children have been less realistic than British children.

Remmers[24] studied and compared teen-agers' problems in the United States, Puerto Rico, Germany, and India. His major conclusions were (1) Teen-agers' self-perceived problems can be comparably measured across widely different cultures. (2) The high internal consistency co-efficients indicate the measuring instrument, SRA Youth Inventory, was reliable. (3) There is a high degree of similarity of ranking of problem areas across cultures. (4) Health problems for teen-agers of different cultures are of minimal concern. (5) Post high school problems tend to be of major concern. (6) While the relative rankings of problem areas are highly correlated, the amount and intensity of worry vary greatly across cultures.

A study by Gibson[25] and other staff members of this project (1966) comparing common educational-vocational problems, especially of disadvantaged youth, in Great Britain and the United States, identified the felt need on the part of educators in both countries for further investigations into programs and problems of vocational-technical education for secondary youth. It also identified the concern of United States educators for appropriate curricula and resultant placement opportunities, updated facilities, and qualified staff.

Vredevoe[26] studied the problem of student discipline in the United States and other countries and reported that discipline was affected by several factors. He suggested that since the high school diploma is important in gaining employment many students that would ordinarily drop out of school stay. These are the less interested students that become discipline problems. Coupled to the increasing size of schools and the general authority rebellion among young people, discipline seems to be a universal concern. In fact both at home and abroad school discipline was a chief concern in 95 percent of the visited schools and among 98 percent of the teachers interviewed.

It was found that school discipline in different countries is in part related to the administrative organization, compulsory school attendance, and the cultural patterns. Some of the major implications of this were -- (1) Separation of sexes does not solve problems of school discipline but creates new ones in place of the old. The sex of the teacher gives no clear superiority in discipline. (2) When education becomes a privilege, discipline is easier; compulsory school attendance hurts this. (3) The attitude of the community with its religious and legal limits sets the tone for school discipline. (4) School organization for special groups (trade, industrial, commercial, etc.) has similar effects as social status in developing discipline attitudes in students.

Comparative studies have also been conducted in other related areas of education. Mitchell[27] (1967) compared the concept and development of guidance programs in the United States and thirteen European-Mediterranean countries. She concluded that pupil guidance was beginning to be recognized as an educational technique for meeting certain societal needs resulting from changing education, family and economic characteristics in these countries. At the time of the study, it appeared to closely parallel the early stages of its development in the United States, being oriented towards vocational direction and psychological testing. In a later study, Mitchell[28] (1969) compared the organizational structures and provisions for pupil personnel services in selected school systems of the United States, England, Scotland, and Northern Ireland. Among the comparisons noted were: (1) The school pupil personnel specialists are more frequently members of a unit staff (county, district, etc.) than of a specific school faculty in the British Isles. (2) In the United States, such workers were usually employed by school systems only, whereas in the United Kingdom, they were often employed through other governmental, country, or educational agencies. (3) Guidance counselors were "non-existent" in the school systems surveyed in the British Isles.

Havighurst[29] (1958) compared the relationship between social mobility, social change and education in four countries including the United States and Great Britain. The results indicated a greater amount of upward social mobility in the United States (33%) than in England (27%) during the present century. He concluded that the United States had made greater use of education to promote upward mobility among its citizens than had England.

Elder[30] (1965) reported a cross-national analysis involving the United States and Great Britain of the effect of parent-child and conjugal patterns upon levels of educational attainment. Findings for the United States and Great Britain indicated the degree of association between parent-youth relations was quite similar in the two countries; however, more Americans from either democratic or authoritarian middle class, working class and lower class homes attended secondary schools than did their British counterparts. Elder concluded that although parental dominance, residency and social class are factors determining educational achievement, educational opportunities are important also.

CHAPTER III. EDUCATIONAL STRUCTURE IN THE UNITED STATES AND THE BRITISH ISLES

In order to understand the educational setting in which the academic achievement of secondary age pupils was measured, it seems desirable to include some minimal background descriptions. This chapter, therefore, presents a broad overview -- not intended as a comprehensive review -- of the general administrative structure of education in both nations as well as the organizational patterns commonly found in each of the participating countries.

I. Broad General Administrative Structure of Education in the United Kingdom.

Before noting the pattern of educational administrative structure in the United Kingdom, it must be recognized that the United Kingdom consists of four distinct and separate countries: England, Wales, Scotland, and Northern Ireland. Because the historical and religious development of these separate countries has been different and because each possesses a cultural heritage of which it is proud, separate education systems have come into being with very real traditions and characteristics of their own. Administratively, England and Wales comprise one educational administrative unit with Scotland and Northern Ireland each having separate units also. For example, the Department of Education and Science in London has no authority in Scotland, where the Scottish Education Department is the appropriate department. Similarly in Northern Ireland the educational authority is its own Ministry of Education. Diversity and variety of approach are probably among the most striking features of British education, for not only are there the broad divisions based on national and cultural differences, but there are also many regional and local vairations reflecting local traditions and preferences. Other notable features of British education are the prominent part played by voluntary organizations and the degree of decentralization of administration.

The national goal is not only equal opportunity for education, but also equal opportunity for whatever type of education is most suited to a pupil's particular needs. The implementation of this aim on the local level may vary. For example, in Scotland and Wales, in line with regional sentiment, implementation varies, just as the Education Acts expressing this ideal vary in the two countries. A unity of endeavor coupled with a decentralized administration and diversity of approach is only made possible by a long tradition of cooperation and partnership between central government and local authorities, between local authorities and voluntary organizations, and between voluntary organizations and central government.[1]

A. England

1. Administrative Structure of Education in England

In 1944 England's Parliament passed an Education Act. As a result of this legislation, education was made compulsory for children between the ages of five and fifteen, with some form of secondary education commencing at about age eleven. The upper limit of compulsory education was raised to 16 in 1970-71.[2]

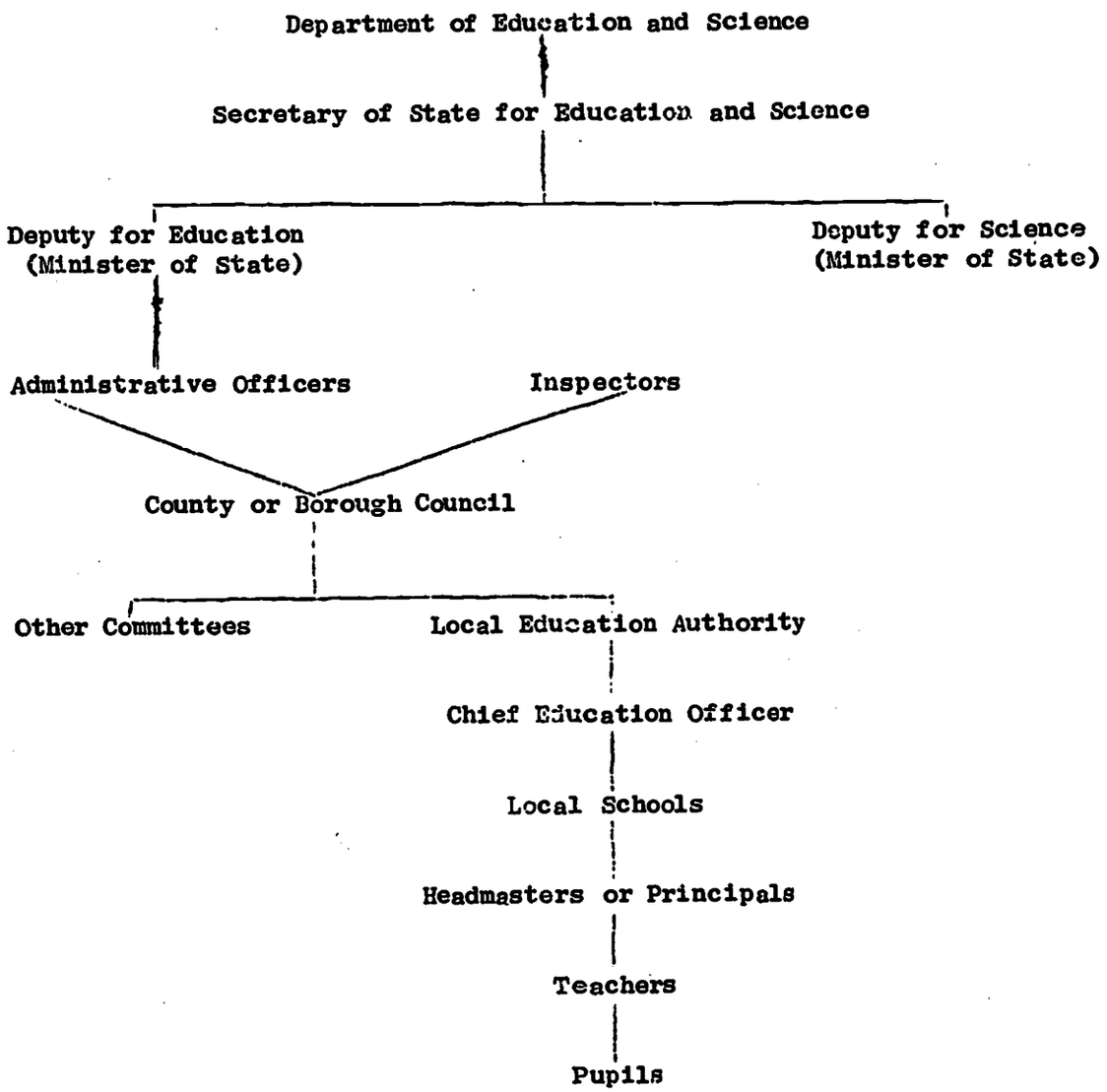
The central authority in England is the Department of Education and Science, which is headed by the Secretary of State. This department is responsible for the determination and application of major policies regarding all levels of education. It sets minimum standards of educational provision and controls the rate, distribution, and nature of educational building, and the training and supplying of teachers. It also determines the policies governing the granting of teaching certificates.

The major units of local government are the county councils and the county borough councils. Counties include the rural areas and small towns. County

borough councils, generally, include the large towns and cities and are elected by popular vote. They are in no way local braches of the Department of Education. It is their responsibility to build schools, appoint and pay teachers, provide materials and equipment. The cost is met out of local taxes with some assistance from the national government. Figure 1. depicts the general administrative structure of education in England.

Figure 1.

Diagram of General Administrative Structure of Education in England



II. Organization of Schools in England

Secondary education, at present, is provided in grammar or modern schools with the addition in some areas of technical and comprehensive schools. This division is commonly known as the "triparte" system of education in England. Each local authority has its own arrangement for deciding what kind of school will best suit each. However, by the end of their primary education, most students have taken what is known as the eleven-plus examination. The results of the test are a major factor in determining whether one goes to a grammar school, a modern school, or a technical school, unless the community has a comprehensive secondary school. Approximately 75 percent of all students receive a secondary modern school education.

A secondary grammar school provides an academic type of program for its students. Termination at about sixteen years of age leads to the General Certificate of Education, Ordinary Level (GCE "O" Levels) and the advanced GCE ("A" Levels) at about eighteen years of age. A minimum of two "A" Level examinations is required for university admission.

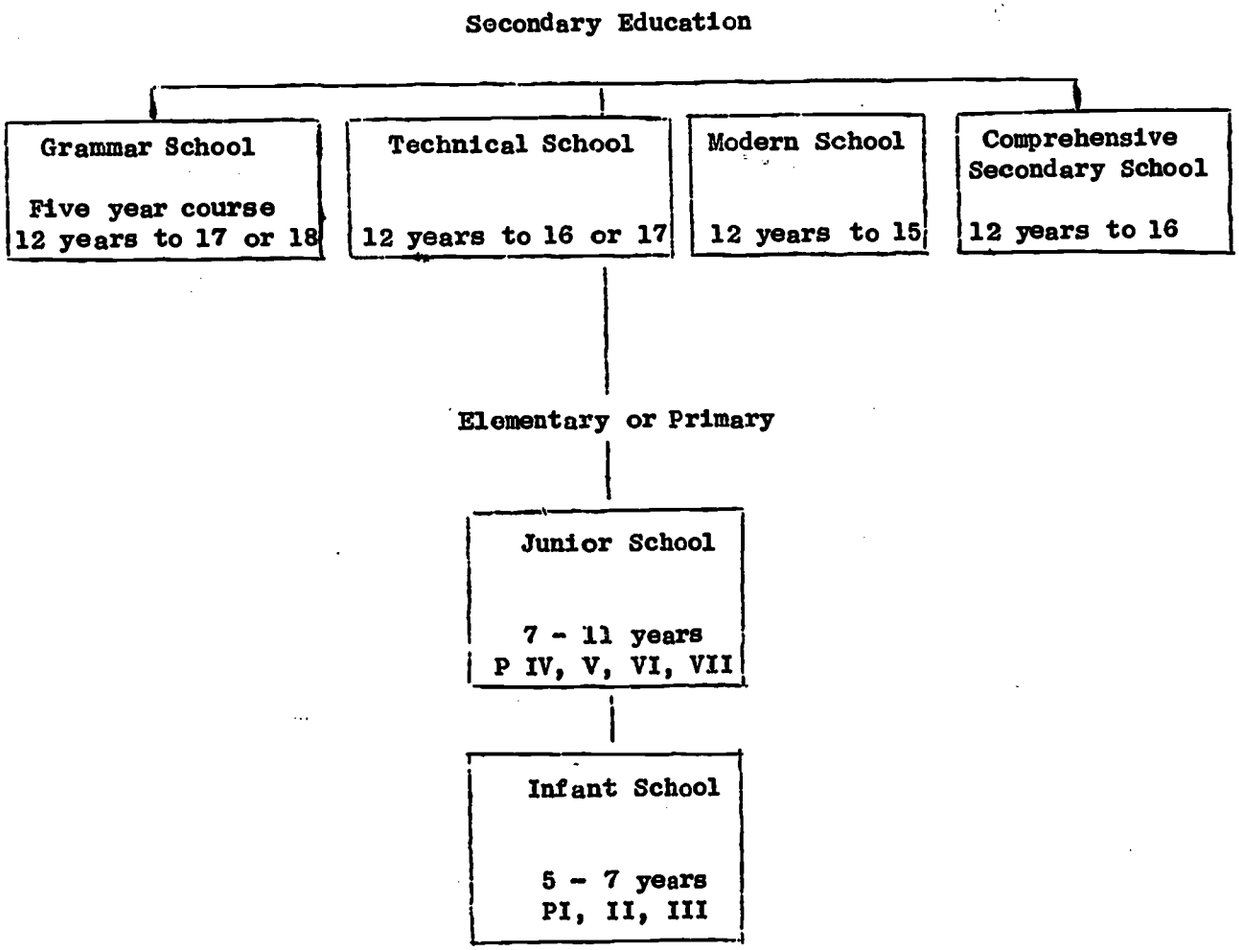
A secondary modern school, which is often nonselective, provided a general type of program up to the minimum leaving age of fifteen until 1970. In 1970-71 this minimum age was raised to sixteen. Students may continue beyond this age if the school has made provisions for a fifth and/or sixth form. Those found capable of more rigorous studies may elect to take the G.C.E. "O" and "A" Level examination. Other students may take the Certificate of Secondary Education examination. The G.C.E. examinations are contructed by one of eight examining boards in England while the C.S.E. examination is made out by the local school authorities.

A number of school systems provide opportunities for terminal training programs in technical and vocational subjects, for both boys and girls, ages twelve to approximately sixteen or seventeen years in secondary technical schools.

An increasing number of local education authorities provide comprehensive secondary schools. It has recently been announced that England envisages the organization of all secondary education on a comprehensive basis within the next decade.[3] This organizational structure is illustrated in figure 2.

Figure 2.

Organizational Structure of Education in England



B. Scotland

1. Administrative Structure of Education in Scotland

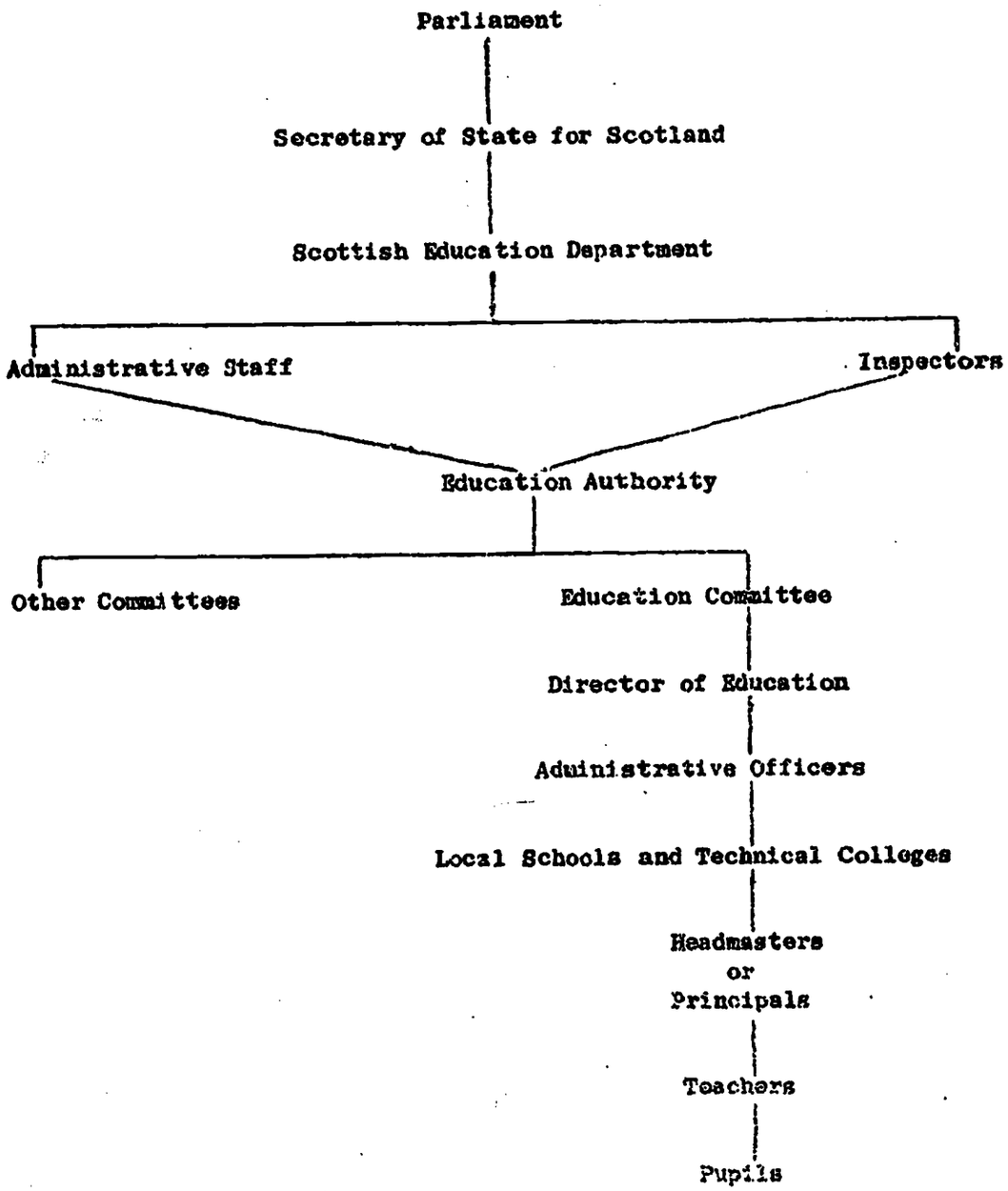
The present system of education in Scotland is governed by the Scottish Educational Act of 1962. Education is compulsory for all students between the ages of five and sixteen.

Education is under the control of the Secretary of State for Scotland. This person is actually a member of the British Parliament. The direct administration of the schools, however, is by a Secretary of the Scottish Education Department, an administrative staff, and by Her Majesty's Inspectors of Schools for Scotland.

The Scottish Education Department, as in England, does not provide schools. The Education Act of 1962 places on local authorities -- the councils of the larger cities and the thirty-one counties into which the remainder of Scotland is divided -- the duty of securing the adequate provision of all forms of primary, secondary, and further education. These councils are locally selected and carry out their duty by providing publicly maintained schools. In deciding what to provide they must take into account the private schools within their area even though only two percent of the students under the age of eighteen receive private schooling.[4] Figure 3 illustrates the administrative structure of education in Scotland.

Figure 3.

Diagram of General Administrative Structure of Education in Scotland



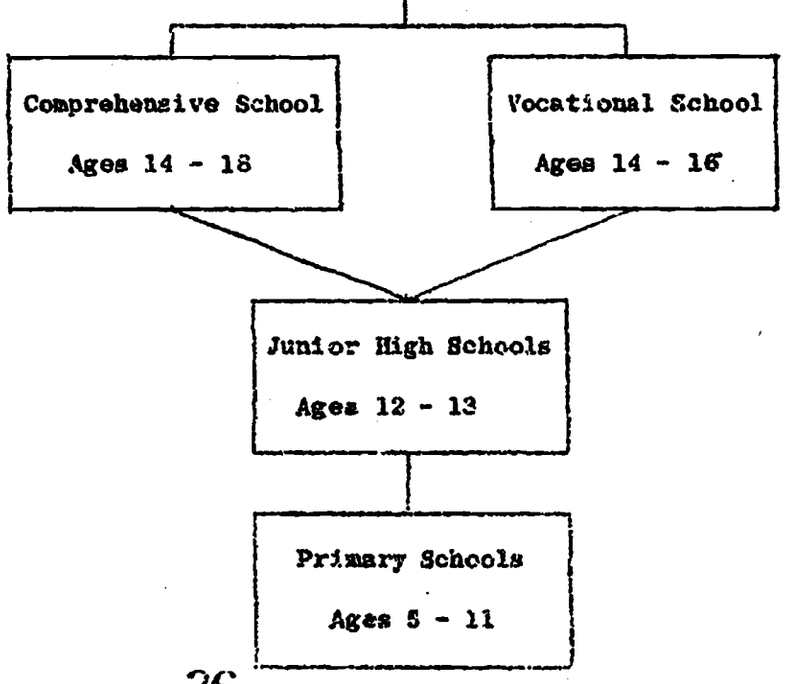
2. The Organization of Schools in Scotland

All pupils transfer to secondary schools at about twelve years of age. This course lasts from three to six years. There are three major types of courses provided in the comprehensive secondary schools of Scotland. The five and six year courses lead to the Scottish Certificate of Education "A" Levels. Four year courses may terminate with the Scottish Certificate of Education "O" Levels. Three year courses provide a general education, often with a vocational emphasis.

There are, in addition to the comprehensive schools, vocational or technical high schools. However, most students begin their secondary education in the comprehensive schools and then may transfer after the second year to the technical school. Figure 4 illustrates the organization of schools in Scotland.

Figure 4.

Organizational Structure of Education in Scotland



C. Northern Ireland

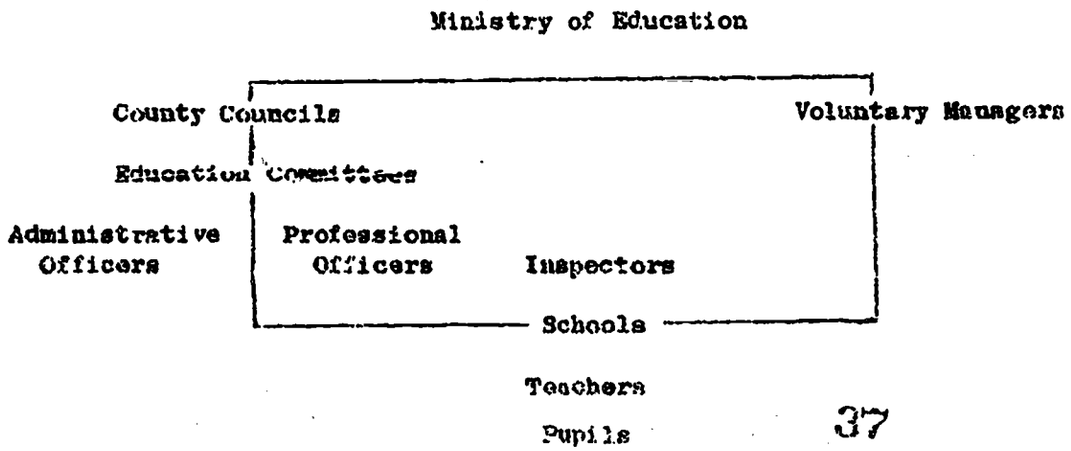
1. Administrative Structure of Education in Northern Ireland

The administration of public education in Northern Ireland is under the control of the Ministry of Education. Similar to Scotland, local Education Committees (functioning under the county council) are responsible for securing the adequate provision of all forms of primary, secondary, and further education. These committees are locally selected and carry out their duty by providing publicly maintained schools. In deciding what to provide they must take into account the private schools within their area. Education is provided in grant-aided schools and all but a small number of children (less than one per cent) attend such schools.[5] Education in primary, secondary, and technical intermediate schools is free, and the cost of education in the grammar schools is substantially offset by scholarships awarded by local authorities. Approximately 82 percent of all grammar school students are on scholarships.[6]

Grant-aided schools are managed by local educational authorities. Voluntary schools are under the management of church authorities; however, they receive national assistance in the form of salaries, buildings, and operating costs.

Figure 5.

Diagram of General Administrative Structure of Education in Northern Ireland



2. Organization of Schools in Northern Ireland

Secondary education begins at about age eleven or twelve. Upon attaining this age, the student proceeds either to a grammar school, a secondary intermediate school, a comprehensive high school, or to a technical intermediate school. This system is not rigid, as transfer between the different types of schools is fairly common.

In the secondary intermediate schools students follow a course suited to their aptitudes and abilities. An increasingly high percentage of pupils are remaining in school after they have reached their sixteenth birthday. The majority, if they stay on, follow courses leading to certain external examinations and certificates.

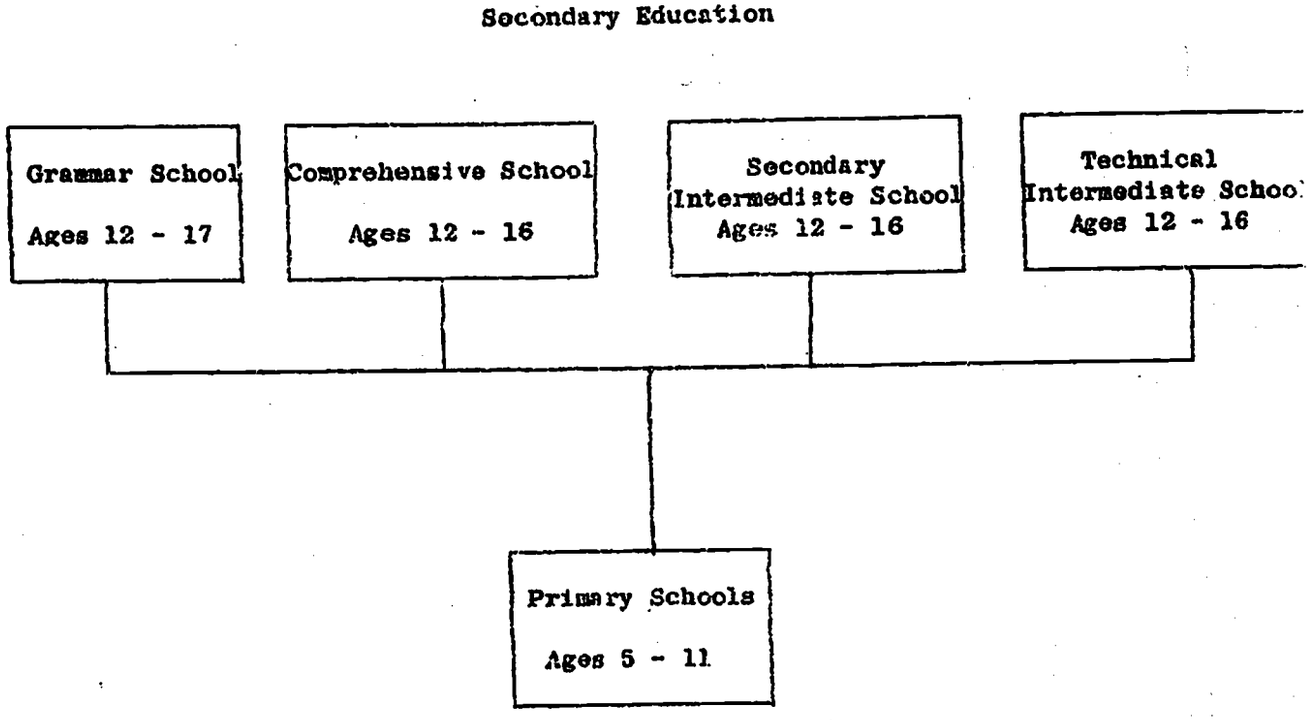
Technical intermediate schools are conducted in association with institutes of further education and are, generally, known as junior technical schools. They provide specialized courses with an emphasis on mathematics and science. Entry here is selective. At the end of a three year course students may take the Technical Certificate Examination which enables them to gain admission to technical institutes of further education.

Grammar schools provide an academic program for those who have been awarded scholarships by the local education authorities. As tuition fees are charged by all grammar schools, those not awarded scholarships have to pay. The course is usually seven years in duration. Students take the Northern Ireland General Certificate of Education, "O" Levels at the end of the fifth year and the "A" Levels at the end of the seventh year.

Figure 6 illustrates the organization of schools in Northern Ireland.

Figure 6.

Organizational Structure of Education in Northern Ireland



II. Broad General Administrative Structure of Education in the United States

Although the Constitution of the United States contains no direct reference to education, the United States Office of Education, under the direction of the Commissioner of Education, is the government agency authorized to promote the cause of education throughout the country. Since World War II, the United States Office of Education has been increasingly influential in educational development in the country. Their activities have included the administering of the various educational programs enacted by Congress.

School systems are under the control of each state and governed by a policy-making body known as the state board of education. Since their board is not usually a body of persons with professional qualifications, it is the usual practice in the United States to have the actual administrative work of a school system performed by persons qualified by knowledge, training, and experience.[7] The highest professional executive of the state school system is the superintendent of schools. In some states this is an elected position, while in others an appointment is made either by the governor or the state board of education.

The superintendent and his staff are concerned with a variety of matters such as the distribution of state and federal funds, the setting of minimum standards for the curricula, the chartering and accreditation of schools, the recommendation of textbooks, and health regulations.

Local school systems are more directly administered by local boards of education. A local board of education has responsibilities such as the formation of general school policies, selection of the local superintendent of schools, the raising of funds for schools through the levying of taxes, the

adoption of the annual budget and the disbursement of funds, and the building and maintaining of the schools.

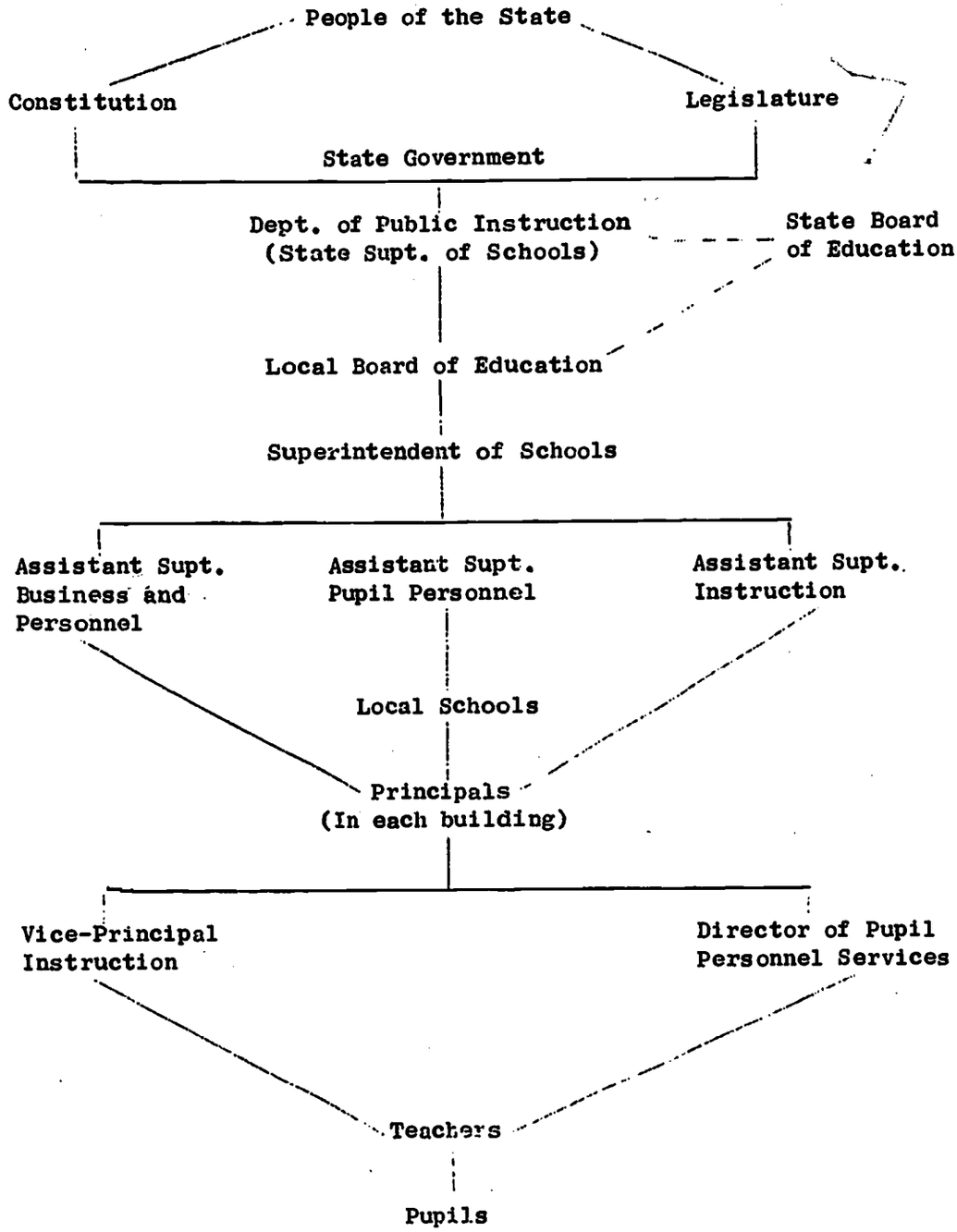
The local board of education is ordinarily composed of three, five, or seven members who are elected to their positions by the citizens of their educational communities. The Board appoints the local superintendent of schools, who, as the chief administrative officer, is directly responsible to the board. Depending upon the size of the school districts, there may be assistant superintendents in charge of various functions. This administrative structure allows the people to actively participate in school matters at the local school district level. Campbell, et. al. point out that the people in the United States hold very zealously to their local schools and to their rights as citizens to participate in decisions about what the schools shall do. The legal power conferred upon the local boards of education reflects America's firm conviction of the advantages of local government. This local delegation of power is also an expression of one of the basic assumptions of the country: that a well-informed citizenry, utilizing democratic processes, can make good decisions.[8]

Each school within a district has a principal whose basic responsibility is to direct the educational program of the school which he heads. Depending on the size of the institution, a principal may have, serving directly under him, one or more assistant or vice-principals, as well as other supervisory, pupil personnel, or administrative personnel who are dedicated to working with the instructional staff and pupils in their respective schools.

In Figure Seven, the general administrative structure of education which is typically found in the United States has been drawn.

Figure 7.

Diagram of General Administrative Structure of Education in the United States.



Organization of the Schools in the United States.

In the United States there have been, traditionally, two patterns of educational organization: the eight-four plan and the six-three-three plan.

The eight-four plan is composed of eight years in the elementary school, beginning with age six (or kindergarten at age five), followed by four years at a comprehensive high school. (See Figure 8.)

The six-three-three plan consists of six years in an elementary school. followed by three years in a junior high school, and concluded by three years at the comprehensive secondary school. (See Figure 9.) In the junior high school pupils usually follow a prescribed curriculum, but are allowed to make some choices for elective subjects. A comprehensive secondary school contains courses of study for all types of students: academic (college preparatory); vocational and commercial; and general. Technical or vocational secondary schools do exist in the United States; however, they are most frequently found within the educational systems of the larger cities and cannot be said to be characteristic of secondary education in the United States.

In recent years a third plan based on a five-three-four scheme known as the middle school plan has received considerable attention. (See Figure 10.) In addition, a number of school systems have within the past ten years added kindergartens which, in effect, would convert the previously indicated traditional plans into nine-four and seven-three-three organizational patterns. It should also be noted that public education in many communities has or is being expanded to provide for two years of college or technical training in junior-community colleges. (See Figure 10.)

Figure 8.

Education in the United States (Eight-Four Plan)

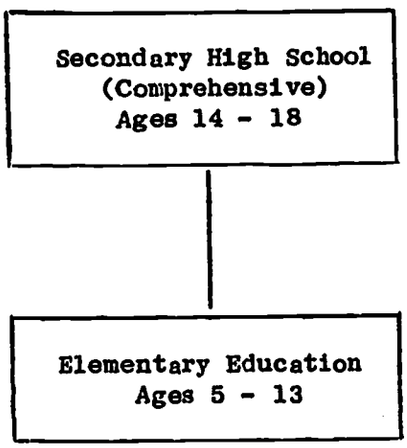


Figure 9.

Education in the United States
(Six-Three-Three Plan)

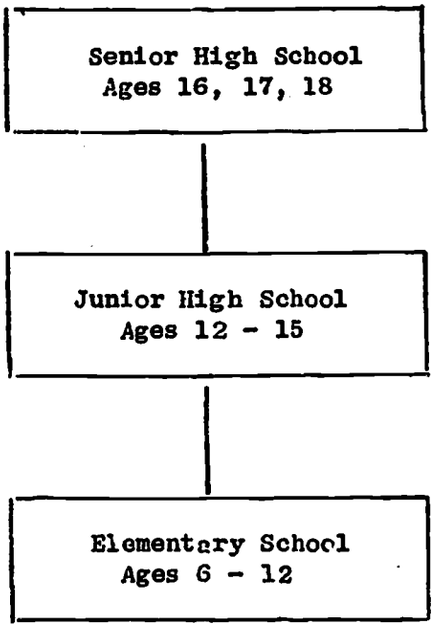
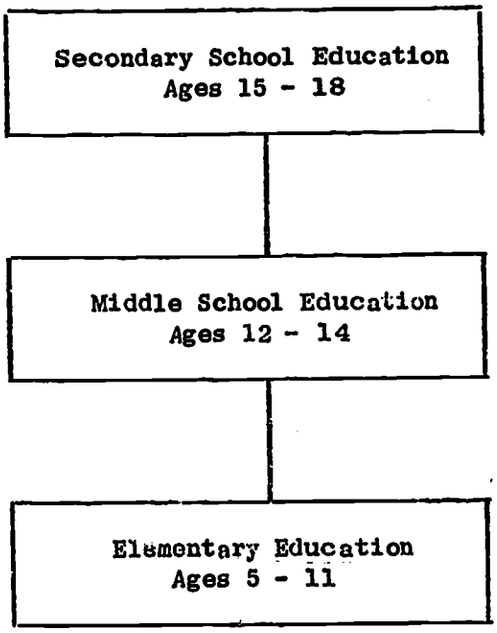


Figure 10.

Organization of Education in the United States
(Middle School Plan)



CHAPTER IV. PROCEDURES FOR THE STUDY

A. Administrative and Planning

As previously indicated (Chapter II), this study was an outgrowth or extension of a previous study, comparing the academic achievement of elementary age pupils in the U.S.A. and British Isles. As a result, continued cooperation and assistance was anticipated and readily received from personnel of the National Council for Educational Research in England and Wales, the Scottish Council for Research in Education and the Council for Research in Education in Northern Ireland. The National Foundation for Educational Research in England and Wales has a corporate membership of L.E.A.'s (Local Education Authorities) university institutes of education, national associations of teachers and other education bodies. Its income is derived from members' subscriptions and a direct grant from the Ministry of Education and Science. The primary object of the Foundation in England and Wales is to conduct research through its own staff working in conjunction with the Ministry of Education and Science and its officers, with Local Education Authorities, and the universities and teachers. It is also designed to act as a liaison body with any international organization for research in education, as an advisory body at the service of the Ministry of Education and Science, and the L.E.A.'s, and as a center for the interchange of ideas concerning educational research. Its work is complementary to that of the universities, and is concerned with both large-scale and highly specialized inquiries. It also develops and published educational tests and publishes books and research reports.

The Scottish Council for Research in Education is controlled by a composite body representing the Educational Institute of Scotland, associations of education authorities, teachers and training colleages, and universities and other organizations interested in education. It is financed by a grant from the Scottish Education Department and by contributions from the Educational Institute and the Education Authorities. The Council has conducted investigations and published

the results on numerous educational problems, and, in addition to the full research reports, shorter bulletins for the benefit of the practicing teacher are issued.[1]

The Northern Ireland Council for Educational research is composed of representatives of local education authorities, Universities and colleges of education and is supported by LEA's and teacher organizations. It is primarily concerned with carrying out research in educational matters and the collection and dissemination of research findings.

An initial planning conference was scheduled at Indiana University in the fall of 1966 in which personnel who hold membership in these educational research bodies from the British Isles participated in addition to representatives from the Basic Research Offices, U.S.O.E., Indiana University, and the project staff. The major tasks of this planning conference were:

1. To review, modify, and/or verify the proposed plan of operation for the project.
2. To identify needed measurement, data gathering, and reporting instruments and initiate their development or refinement or selection.
3. To delineate and assign certain specific tasks relevant to the projects plan of operation.
4. To develop an operational time table for the initial year of the study.

B. Community and School Selection

Discussions held between consultants in the British Isles and project staff members concluded that the follow-up aspect of the study made it desirable to include many of the school systems which participated in the previous elementary study. As a result, the school systems of Buckinghamshire, England; Down, Northern Ireland; and Fife, Scotland; in the British Isles were invited to participate in the project and they readily agreed to do so. A total of nine

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[1]Great Britain, British Information Services, Reference Division, I.D. 606 (Revised), August, 1960, Education in Great Britain: An Outline of the Educational System, p. 37.

communities were selected from these counties. The selected British communities were analyzed on the basis of such characteristics as:

1. population characteristics: including size, age and sex distribution, educational levels, occupational distribution, racial and ethnic sub-groups, population turn-over.

2. ecological characteristics: including residential, commercial, and industrial peculiarities.

3. industrial-economic characteristics: including locale of employment of community labor force; ratio of service workers to industrial workers (as a measure of cummunity indepenedence), assessed property evaluation in relationship to school districts' average daily attendance.

4. political-social characteristics: including dominant political stance (such as liberal, conservative, or fluctuating), relationship of political activities to administration and control of local school system, operative community pressures and issues, community attitudes and values by social class structures, cosmopolitan versus local outlook.

5. geographic characteristics: community boundaries, school district boundaries within communities, topographical features.

At this point, it should be noted that the efficient, generous, and willing cooperation and assistance of educational personnel at all levels of the British Isles aided greatly in expediting the initial arrangements for the study and its eventual follow-through and conclusion.

A total of fifteen schools were selected, from the nine surveyed communities in the British Isles, and invited to participate in the project. All invited readily accepted. These included the Grange School and the Aylesbury Girls High School of Aylesbury, England; the Buckingham County Secondary School of Buckingham, England; and the Beaconsfield (Church of England) Secondary School of Beaconsfield, England; the Bangor Boys Grammar School, The Bangor Secondary School, the Bangor Technical School, and the Glenlola School of Bangor, Northern Ireland, the Banbridge Academy and the Banbridge Secondary School of Banbridge, Northern Ireland; and Newry High School in Newry, Northern Ireland; Kirkcaldy High School, Kirkcaldy, Scotland; the Glenwood Junior High School and Glenrothes High School, Glenrothes, Scotland; and Madras College (a secondary school), St. Andrews, Scotland.

Following the identification of the British communities, 36 United States communities were selected with at least three communities of near similar characteristics for each of the participating British communities. These communities were selected from a ten state area. Fourteen schools, both public and private, were randomly selected, representing 10 different communities in seven states. At this point, chief schools of the educational units, represented by the schools selected were contacted, appraised of the objectives, and characteristics of the study and their participation solicited. Where necessary, alternate selections were made. Following approval at this level, the principals of the schools selected were contacted to discuss the possible involvement of their school. All schools contacted readily agreed to participate. These included Dover-Foxcroft Academy, Dover, Maine; Mt. Pleasant High School, Mt. Pleasant, Michigan; Maumee Valley County Day School, Maumee, Ohio; Eisenhower and Fassett Junior High Schools and Clay Senior High School of Oregon, Ohio; Perrysburg Junior and Senior High School, Perrysburg, Ohio; Port Clinton High School, Port Clinton, Ohio; Marshall Senior High School, Coos Bay, Oregon; Greenville Junior and Senior High Schools, Greenville, Texas; and Glenville Junior-Senior High School, Glenville, West Virginia; and Sutton Junior-Senior High School, Sutton, West Virginia.

The age-grade samples for the study were chosen from a spread of communities selected on the basis of such characteristics as population, industrial characteristics, governmental characteristics, relationship to other communities and various geographic characteristics. Abbreviated sociological studies of each of these communities were conducted. Procedures for this phase of the study included: (1) the analysis of objective data such as census reports, tax records, postal records, school records, and other similar data and (2) the collection of implementing subjective data through observations and interviews. A discussion of community characteristics identified by these procedures is presented in Chapter V. These communities were as follows:

Aylesbury, England	Dover, Maine
Beaconsfield, England	Mt. Pleasant, Michigan
Buckingham, England	Maumee, Ohio
Bangor, Northern Ireland	Oregon, Ohio
Banbridge, Northern Ireland	Perrysburg, Ohio
Newry, Northern Ireland	Pt. Clinton, Ohio
Kirkcaldy, Scotland	Coos Bay, Oregon
Glenrothes, Scotland	Greenville, Texas
St. Andrews, Scotland	Glenville, West Virginia
	Sutton, West Virginia

Certain terms were defined to clarify these categories as used in the study. The term "secondary schools" was to encompass all types of educational institutions which include the equivalent of grades seven through twelve in the United States' school system. A difference exists in the use of the terms, "public" and "private" as used in educational circles in the United States and Great Britain. For purposes of this study, the term "private" referred to those educational institutions which normally place a tuition charge on each student in attendance, whereas "public" referred to those schools which do not normally attach a tuition charge for attendance. In this study, small communities are identified as those having a population between 2,500 and 10,000. The medium-sized communities are those having populations between 10,000 and 25,000 (U.S. Department of Health, Education, and Welfare, Circular No. 501, June, 1957).

C. Instrument Development and Selection

The design of the study necessitated the selection of standardized tests to measure academic potential and academic achievement. A major consideration was the selection of evaluative instruments that could be used in a cross-cultural study of this nature. The following considerations influenced the examination and final selection of the test batteries: (a) subject matter areas covered (b) reliability and validity factors (c) range of grades included in the test batteries (d) cultural fairness of the test items in the subject matter areas (e) number of alternate forms available for successive testing programs (f) ease of test administration, and (g) ease of scoring.

After reviewing the literature discussing the standardized tests currently being used in the United States and consulting with representatives from various test companies, a selected sample of achievement and ability tests were examined by the project staff. The final instruments selected by the staff were the California Achievement Test battery and the Otis (short form) Ability Test.

1. The California Achievement Test Battery

In terms of the previously mentioned criteria, the California Achievement Test seemed to be especially suitable for this study.

Subject matter areas covered -- six achievement variables are assessed in the California Battery. These variables comprise three major areas: reading, arithmetic, and language, divided into six sub-tests as follows:

Reading Vocabulary Reading Comprehension	Total Reading
Arithmetic Reasoning Arithmetic Fundamentals	Total Arithmetic
Mechanics of English Spelling	Total Language

These same six variables are evaluated at all levels of the California Achievement series thus facilitating comparisons between grade levels.

Reliability - Reliability coefficients were computed using Kudar-Richardson formula 21 on the six principle subtests of the California Achievement Tests. A coefficient of reliability of 0.97 (for all levels) results when the coefficients of the six tests are applied to the formula $r_{6c} = \frac{6\bar{r}}{1 + 5\bar{r}}$ where $\bar{r}$ = average reliability for the six tests equally weighted. The standard error of measurement is also given for each of the six variables in the different levels of the achievement battery.

Validity - The California Test Company has conducted research concerning the validity of their achievement battery, under two major headings (1) content validity and (2) construct validity.

(a) Content Validity - the discriminating power of each item was determined for each grade by subtracting the percent of correct responses of the bottom twenty-seven percent of the pupils from the percent of correct responses of the top twenty-seven percent. The average difficulty was obtained by determining the percent of pupils in each grade that responded correctly to each item and then computing the average of the grade. An attempt was made to cover a broad sampling of content in each test. Over-all discrimination indices of the various batteries are expressed as phi coefficients and presented in the manual.

(b) Construct Validity - The California manual[2] reports validity studies between the California Achievement Tests and other standardized achievement instruments. Each of the subtests are compared to similar tests in other recognized batteries.

Range of grades included in the test batteries - The California test battery consists of five levels beginning with the first grade and going through the twelfth grade. The six variables previously mentioned may be found in each of the five levels. This not only permitted intergrade comparisons but also allowed for an adequate range of difficulty level and anticipated further comparisons at higher grade levels. The California was one of the few batteries that examined the same general achievement variables in grades one through twelve.

Cultural fairness of the test - The project staff realized that a number of items in the test batteries would have to be eliminated because of cultural bias. In their examination of recognized achievement batteries it was found that the California had fewer items dealing with the monetary system, weights and measures, time, and geographic locations than the other achievement batteries. Although a few items were eliminated in the arithmetic subtests at

each level the eliminations were less than would have occurred in other batteries. The Cronbach alpha internal consistency test established reliability coefficients for these arithmetic subtests after the elimination of the biased items at each grade level respectively.

Following are the reliability coefficients:

Grade	Reasoning	Fundamentals
7	.31	.39
8	.32	.31
9	.74	.80
10	.61	.33
11	.68	.75
12	.76	.79

Number of alternate forms - Since the achievement tests were to be administered three times during the academic year, the availability of alternate forms was also an important consideration in test selection. Appropriate alternate forms were available in the California Achievement Series. Two forms were used for the primary level and three alternate forms for the other levels. (Forms Y and Z were not available for the primary level at the time of the study).

(2) Otis Quick Scoring Mental Ability Tests

The Otis Mental Ability Tests were selected as the instruments for obtaining measures of academic ability for the classifying of the pupil population of the study into high, average, and below average ability groupings. These catagories were defined as follows: I.Q. score of 110 and above, high ability catagory; 90 to 109, average catagory; and below 90, below average ability.

The Otis series was selected as most appropriate on the basis of established validity and reliability, series extending from grades 1 thru college, availability of alternate forms, and suitability for such an international study. The Otis Beta Test was administered to pupils in grades 7 thru 9 and the Otis Gamma Test for grades 10 thru 12.

The Otis series establishes validity on the basis of estimating ability to handle school work successfully. An example of the degree of validity established in this context is a correlation between the Beta short form and sub-tests of the Stanford Achievement Tests. The Otis Beta Series show correlations ranging from .564 (arithmetic computation) to .627 (word meaning) on the nine sub-tests of the Stanford Achievement Tests, Form J.[3]

The reliability of a test is defined as the consistency with which the test measures whatever it does measure. Split-half reliability coefficients reported for the Otis Beta reported coefficients of the correlation between forms A and B of the tests as .96.

(3) Other Test Instruments

Other standardized instruments were utilized for measuring student achievement in the sciences. These tests were the Advanced Science Test of the Metropolitan Achievement Series, the Nelson Biology Test, the Anderson-Fisk Chemistry test, and the Dunning-Abeles Physics test.

In addition to the previously described standardized measures of pupil achievement and academic potential ("I.Q."), the project staff sought to develop achievement tests in those academic areas appropriate to the project's intent.

Reliability and validity for the project-developed achievement tests were sought through these procedures: (1) To assure high content validity for each country a list of proposed items was submitted to a representative sample of teachers for each of the four subject matter areas and from each of the involved countries. A complete list of these suggested items was then prepared and resubmitted to the teacher sample for deletion from the list of curricularly inappropriate questions. The project test was then constructed from the questions appropriate for all of the participating countries. (Appendix A)
(2) To determine its concurrent validity, the project tests and an appropriate

standardized achievement test for the subject matter areas was administered to a pilot group of students of each grade level in the British Isles and the United States and Pearson-product-moment correlation coefficients determined. The split-half formula was applied to the test data derived through the pilot studies to determine the reliability of the project-developed test.

The results of these procedures indicated a computation of .67 for a secondary school sample of 100 students and .78 for a junior high school sample of 00 students.

(4) Implementing Data

In addition to the utilization of tests designed to measure pupil achievement instruments and forms were also developed to facilitate the gathering of implementing data. These data were sought in the areas of --

(a) School philosophy
(b) School descriptive data
(c) Subject matter content
(d) Subject matter methodology
(e) Pupil data
(f) Community data

The specific procedures for gathering these data are described in the paragraphs which follow.

(a) School Philosophy

Participating schools in the identified communities were asked, through their chief administrator, to provide through a rating scale (Appendix B) and interviews an indication of institutional philosophy and objectives.

(b) School descriptive data

In addition, data as suggested in Section C School and Community, of the Evaluative Criteria, National Study of Secondary School Evaluation was secured from the participating schools to lend further depth to the analysis of pupil achievement. These would include data on the holding power of the school, age-grade distribution, academic potential, and educational and occupational inten-

tions of pupil population, and follow-up data of graduates if available. A form for gathering these data was developed (Appendix B) and supplementary interviews were also scheduled.

(c) Subject matter content

An analysis of subject matter content was planned which would include indications of content for grades 7 through 12, in the subject matter areas under investigation; the proportional amount of semester time allocated to the various topics comprising the course offering, the proportional amount of time allocated to the various topics comprising the course offering, and the proportionate amount of assigned textbook and other required readings devoted to these topics. Forms to facilitate the gathering and categorizing of these data were developed (Appendix C). In addition, supplementary interviews and classroom visitations were scheduled.

(d) Subject matter methodology

An analysis of subject matter methodology was made based upon the techniques of rating scales and methodology analysis scales. In the first procedure ten dominant features of the classroom would be rated on a 5 point scale as follows: (See Appendix D)

(1)	Instructional approach:	directive vs. non-directive	
(2)	Pupil Involvement:	spectator vs. participation	
(3)	Planning for pupil learning:	pupils who are able to move from predestined beginning to a predestined ending	vs. pupils moved from where they are to where instructor believes they can go
(4)	Teacher presentation:	Teacher presentation of facts	vs. self-discovery by pupils
(5)	Pupil evaluation:	Infrequent, unplanned and subjective	vs. planned frequent, and objective

(6) Feedback and remedial action:	unplanned and unprovided	vs.	planned and provided
(7) Pupil motivation: (intent to learn)	inattentive and/or resistant to learning	vs.	attentive and eager to learn
(8) Teacher motivation: (intent to teach)	apathy and stagnation	vs.	enthusiasm and effort to teach
(9) Classroom management:	authoritarian	vs.	permissive
(10) Classroom atmosphere:	repressive	vs.	stimulating

This rating scale would be completed for each instructor involved on two different occasions during the academic year, by three different raters--the instructor himself, his immediate supervisor, and an outside observer from the project staff; thus providing data for reliability and validity checks on the instrument and its findings.

In the second procedure, each subject matter teacher involved would be asked to complete a Methodology Analysis Scale (see Appendix E) which would provide additional data for examining possible relationships between instructional methodology, types of test items, and pupil achievement as measured by the project tests.

(e) Pupil data

The pupil sample for this study was selected from the communities previously identified and represented both private and public institutions. This population of approximately 5,000 was drawn from British and United States' students, grades seven through twelve, representing both public and private institutions.

Background data on pupils to be tested would be gathered as follows:

a) birth date

b) birth place

c) sex

d) community of residence

e) school

f) years in school

g) kindergarten (attended, not attended)

h) home language (if other than English)

i) father's education

j) mother's education

k) father's occupation

l) mother's occupation

m) semesters of course work since entering seventh grade in general subject-matters areas of:

1) arithmetic

2) English

3) reading

4) science

n) occupational aspirations

o) educational aspirations

p) score on standardized "I.Q." test

q) leisure time activities and hobbies

Questionnaires were developed (see Appendix F and G) for the collection of this data.

(f) Community data

Implementing community data were collected through community visitation and observations, resource utilization, interviews with significant community personnel and assigning certain items on the pupil questionnaire for eliciting community sociological data.

(g) Teacher data

Personal teacher data was collected through a teacher questionnaire (Appendix H - I) and interviews. These data were in addition to the subject matter

methodology and classroom observation reports previously indicated.

D. Data Gathering

Following administrative planning meeting and instrument selection or development, the actual gathering of data was undertaken. The major data components were community, school, pupil, and academic achievement. Two major data gathering conferences were held, the first in the U.S.A. and a second in the British Isles, attended by project staff and consultants.

These conferences resulted in a plan for data gathering as follows:

(1) Community data -- Gathered through survey of appropriate records and publications; questionnaire items, interviews, and observations. To be collected during the first year of the study.

(2) School data -- Gathered through use of rating scales, check lists, questionnaires, school records and publications, interviews and observations involving school administrators and teachers. To be collected during the second and third year of the study.

(3) Pupil data -- Gathered through use of questionnaires, school records, interviews and observations. To be collected during the second and third years of the study.

(4) Academic achievement data -- Gathered through the use of standardized achievement tests and academic aptitude tests, the latter for classifying students by academic potential categories only. Achievement tests were administered at the beginning and conclusion of the academic year during the second year of the study.

E. Analysis Methods for the Study

The statistical methods for the study are presented in detail in Chapter VI of the study. Briefly, these methods were designed to --

(1) assess significance of differences between and among the main effects of country (United States, Britain), ability level (high, average, low) and grade level (seven through twelve inclusive) for each respective dependent variable of mean achievement, the co-variate being the students' first testing achievement scores. A separate analysis of mean achievement was made for students enrolled in public and private secondary institutions.

(2) determine differences in mean student achievement for those students involved in the longitudinal aspect of the study for the achievement variables of reading, arithmetic, and English-usage. (Such an analysis will test the hypothesis that specific periods can be identified wherein respective students' achievement across the main effects of country, ability, and grade level may differ.

An objective descriptive analysis of sociological-ecological. institutional philosophy-objectives, subject matter methodology-materials coverage, and other variables influencing the individual students performance (such as parental education, parental occupation, occupational aspirations, educational aspirations, etc.) was made.

The data of the preceding steps correlation and other shall be integrated through analysis of relationships. These procedures lead to the identification of factors which may or may not be significant influences on achievement. (This analysis will also test the hypothesis that specific factors can be identified which influence pupil achievement.)

The summarized findings were reviewed by the project staff and consultants to determine appropriate conclusions, implications and recommended follow-up studies and other actions for utilization of the findings.

[2]Tiegs, Ernest W., and Clark, Willis W., Manual, California Achievement Tests Complete Battery, Lower Primary, California Test Bureau, Monterey, California, 1957. p. 12.

[3]Otis, Arthur H., Otis Quick Scoring Mental Abilities Test: New Addition, Manual of Directions for Beta Test, Harcourt Brace and World Inc., New York, N.Y.

F. Procedural Time Table

1. Preparation Phase (Sept. 1966 - Aug., 1967)
   Administration organization (Sept. 1966)
   Conference of project staff and consultants, I.U. (Sept. 1966)
   Community-school identifications and coordination visitations (Oct. 1966 - May 1967)
   Community Surveys (Jan. 1966=Aug. 1967
   Instrument selection and development
   Instrument and procedural trials (Apr. - June 1967)
   Scheduling of data gathering (Aug. 1967)

2. Execution (Data Gathering) Phase (Sept. 1967 - Dec. 1968)
   Community surveys (continued) (Sept. 1967, Dec. 1968)
   Conference of Project Staff and Consultants, London (Oct. 1967)
   Pre-testing (Aug. - Oct. 1967)
   Gathering administrative, school and classroom data (Sept. 1967 - Dec. 1968)
   Ability level (IQ) testing (Jan. - Feb. 1968)
   Post-Testing (May - June, 1968)

3. Data Preparation Phase (Jan. 1969 - Aug. 1970)
   Test scoring
   Data organizing
   Key punching and other preparation
   Data verification
   Preparation of descriptive data
   Counsultant conferences

4. Data Analysis and Reporting Phase (Sept. 1970 - Dec. 1971)
   Data analysis
   Preparation and duplication of final report

5. Dissemination Phase (Jan. - June 1972)

CHAPTER V. THE SECONDARY SCHOOL IN THE BRITISH ISLES AND THE UNITED STATES

A. The Community Setting

The communities in which schools were located in this study were selected and matched on the basis of near-similarities of population, type of industry, proximity to metropolitan areas, and geographic characteristics. Visits were made to all communities and interviews were held with various people from business establishments, religious organizations, government officials, and educational institutions.

Brief descriptions of these communities follow. Population information was obtained from The U. S. Bureau of the Census (1963), and General Register Office, London, (1966).

1. United States and English Communities

Perrysburg, Ohio and Aylesbury, England

Perrysburg is a small, historical city located on the Maumee River. The majority of the residents are white-collar workers, reside in homes which they own, and have completed four years of secondary education or more.

In the surrounding area are found farms specializing in grain and small produce. The community possesses grain elevators where wheat, oats, corn, and soy beans are stored until ready for shipment out of the Port of Toledo. (This is a metropolitan city located ten miles from Perrysburg.) Numerous operating limestone and silica-sand quarries are located here as well as small manufacturing industries such as metal stampings and chemical laboratories.

Aylesbury, England

The population as of the 1961 census was 7,500. It has experienced a significant increase in population since 1961 due to the building of new dwellings and light industry moving into the area. The majority of people own their homes, although a number of the younger and older residents live in municipally operated row-type dwellings. Over 30 percent of these residents are white-collar workers who find employment in the community or commute to London by train each day. Aylesbury is also an agricultural center for the Upper Thames River Valley with small farms producing dairy products and wheat. Other industries include light manufacturing concerns which make auto parts, rivets, and electrical equipment. Silica-sand quarries and grain mills are located nearby.

The school chosen from this community was Grange Secondary Modern School. Many pupils who qualify for grammar school education elect to go to Grange because of its diversified program of studies. Grange was the only school in the United Kingdom to have a full-time guidance counselor on its staff.

Sutton, West Virginia and Buckingham, England

Both of these communities are predominately farming areas and are located several miles from a metropolitan area. Their populations are small (less than 4,000), and an increase in the future is doubtful. Although one third of Buckingham's residents is foreign born and only one percent is in Sutton, both towns have 29 percent of foreign born residents employed in white-collar positions. Each town's only secondary school was selected for inclusion in the study: Buckingham County Secondary Modern School and Sutton High School.

Dover Foxcroft, Maine and Beaconsfield, England

Dover Foxcroft is a small town in northwest Maine with a population of 4,000. This area is well known for its lumber mills and textile manufacturing concerns.

Beaconsfield, with a population of 10,000, is a residential area with light manufacturing companies such as furniture production and lumber mills.

Both communities have private schools within their boundaries: Foxcroft Academy and Beaconsfield Church of England Secondary School. These were both included in the investigation.

2. United States and Scotland Communities

Mt. Pleasant, Michigan and St. Andrews, Scotland

Mt. Pleasant, population of 14,000, includes a university within its city limits. It has had an increase of 31 percent since 1950. Of the residents, two percent were born outside the United States. Furniture lumber, wood products, non-electrical machinery, and chemical products are among its manufacturing industries.

St. Andrews, with a population of 10,000, also includes a university within its historic boundaries. There has been an increase in the town's population of 40 percent since 1951. One and three-tenths percent of the residents were born outside of Scotland. Unlike Mt. Pleasant, it is located on a major waterway (North Sea) and is the site of the world's first golf course. There is some textile manufacturing as well as many small shops for the production of handmade wollens and golf clubs.

Both cities are surrounded by rich farm lands; dairying is considered a major industry.

Madras College, a sixteenth century former monastery, is the town's secondary grammar school. Mt. Pleasant High School is its matched counterpart in the United States.

Coos Bay, Oregon and Kirkcaldy, Scotland

Although the sizes of these two communities are quite different, they possess similar characteristics. Both are located on major waterways. Coos Bay is the world's largest lumber export center in the United States. Kirkcaldy ships linoleum, coal, and locally made products. Each possesses a harbor which is the center for many fishing activities. Coos Bay has a two-year junior college within its city limits, while Kirkcaldy has a technical college.

Of the population, in Kirkcaldy, 26 percent is under 15 years of age, whereas 34 percent from Coos Bay is under 18. In Coos Bay four percent and in Kirkcaldy six percent are foreign-born residents. Kirkcaldy High School and Marshall Senior High School in Coos Bay were chosen to be part of the study.

Oregon, Ohio and Glenrothes, Scotland

These two communities are both new towns which were created following World War II.

Oregon has a population of 13,319 and has experienced an increase of 30 percent since 1950. Of its population, 39 percent is under 18 years of age. Several industries are located within its boundaries such as oil refraction, grain elevators, and coal docks. Much land is available for building homes as well as manufacturing concerns. Clay High School, the only public secondary school in the city, was included in the investigation.

Glenrothes has a current population of 12,750, but is expected to increase to approximately 50,000 in the next decade. Like Oregon it has large tracts of land for homes and industry. Of its population, 38 percent is under the age of 15. At the present time it has one large shopping area for the residents, but another is planned for the future.

At one time the surrounding area was rich in coal, but since the majority of the mines have closed, light industry has been encouraged to locate in the vicinity. Glenrothes Senior High School, which is comprehensive in nature, is the community's only secondary school.

3. United States and Northern Ireland Communities

Greenville, Texas and Newry, Northern Ireland

Greenville is a middle-sized urban community with a population of 19,000 residents. It is located forty-five miles from Dallas. There is a strong possibility that the Sabine River which flows through the town may be opened for large vessels. This would give Greenville access to the Gulf of Mexico and serve as a shipping port for the grain and cotton industries located there.

Manufacturing varies from the production of transportation equipment (excluding motor vehicles) to textile mills. Of the total population, 40 percent is engaged in white-collar occupations.

Newry is Northern Ireland's southernmost city. It is located thirty-five miles from Belfast, the capital city of the country. Via the Newry River and Canal the city has access to the Irish Sea. It is known for the manufacturing of linen products, cattle raising, and tobacco growing. Approximately 35 percent of the residents are employed in white-collar jobs. Newry and Greenville High Schools were included in the investigation.

Pt. Clinton, Ohio and Bangor, Northern Ireland

Port Clinton, Ohio is a community of approximately 12,00 located on the Southwest corner of Lake Erie. It is a popular lakeside resort and boating area. Several light industries also operate in the community.

Bangor, Northern Ireland is a municipal borough with a population of over 20,000. It is located in the Northeast corner of County Down, Northern Ireland on the South coast of Belfast Lough, near its mouth on the Irish Sea, 12 miles east Northeast of Belfast. It is a seaport and a popular seaside resort, a yachting center, and the scene of annual regatta. There are three piers which form an artificial harbor.

Glenville, West Virginia and Bambridge, Northern Ireland

Glenville, West Virginia is a small town of about 2,800, capital of Gilmer County, central West Virginia on the little Kanawha 21 miles West Southwest of Weston. It is in an agricultural region but also has glass manufacturing and lumber milling. A state college is also located in Glenville.

Bambridge, Northern Ireland is a community of approximately 3,500 located in Down County. It is a trading center for inhabitants of the surrounding rural areas. Several light industries are also within the corporate limits of the community.

B. The Secondary School in the British Isles and the United States

1. Introduction

In both the United States and Great Britain, public secondary education is the responsibility of the local education authority. Too, the secondary school more than any other institution on the educational continuum tends to most accurately reflect community characteristics, including local support for the educational effort. While the secondary school occupies a middle slot in the educational hierarchy, as may be noted in Figures 1 and 2 in both the United States and the British Isles, they also tend to represent the formal education terminal point for the majority of citizens.

While the majority of the school population in both countries attend public supported secondary schools, there are also, in each country, large numbers of church supported secondary schools. The vast majority of these in the United States are Roman Catholic, with a few belonging to other denominations. In the British Isles the majority are Church of England supported, although there are also a large number of Roman Catholic secondary schools as well.

In addition, there are privately supported secondary schools in both the United States and the United Kingdom. These comprise a relatively small proportion of secondary schools in the United States. In the United Kingdom, however, they number approximately 5,000 and enroll some 500,000 pupils of whom approximately 10 percent are over 15 -ears of age. A small minority of these schools such as Eaton and Harrow enjoy international fame. Comparatively speaking, the private school is much more prevalent on the British educational scene and also appears to have a greater academic status than its counterpart in the United States. In this study both public and privately supported secondary schools in the United States and the British Isles were represented.

In the United States the overwhelming majority of secondary schools are coeducational, with often a dual emphasis on preparation for college or preparation for a vocation. In the United Kingdom one still finds numerous secondary schools which are segregated by sex. The educational emphasis of the British secondary school may depend on the specialized nature of the institution (i.e., the grammar school emphasizes a college preparatory institution, the technical-vocational school , preparatory programs for occupations and the comprehensive secondary school, diversified offerings similar to those in U. S. high schools.). In both the United States and the United Kingdom, special classes in schools are provided for children who have physical or mental handicaps or who may in

other ways need special treatment.

The responsibility for the leadership and management of the secondary school is vested in a chief school administrator, commonly labeled the school principal in the U. S. and the headmaster or headmistress in the British Isles. In many large United States secondary schools one is also apt to find an impressive array of assistant principals and various other special administrators. This is less likely to be the case in even the largest of secondary schools in Great Britain. Also it is more usual for British administrators to have teaching responsibilities than is characteristically true of the United States administrator. It also appears to many observers that the British administrator wields greater power in his little educational world than his American counterpart who must frequently look over his shoulder at his local superintendent, school board, perhaps P.T.A. and supporting public.

Another major distinction between school administrators in the United Kingdom and the United States lies in their preparation for school management. In the United States, as typified by the schools in this sample, chief school administrators usually complete preparation programs at the graduate level for school administration degrees and certificates. No such preparatory program exist at this time in the United Kingdom (although, several institutions of higher education are contemplating the development of such programs.*) For example, most United States school administrators in the project sample who were interviewed felt that they had been adequately prepared to cope with both the administrative and curricular problems of secondary education, including school financing, facilities, coursework and schedule planning, management and personnel. By contrast, many of the headmasters of secondary schools in the United Kingdom admitted that they had learned their administrative duties on the job and that at least initially, they often, as one headmaster noted, "muddled through in the best British tradition."

* Moray House College of Education initiated a series of workshops to provide special training for school administrators in the fall of 1969.

As previously implied, in both the British Isles and the United States, the school administrator is certainly the most singularly important staff member of the secondary school. He is the one who, in the last analysis, must make the critical decisions, set the tone for morale, and establish a philosophical base from which school policy was determined.

It was therefore considered important to this project, comparing the academic achievement of secondary school youth, that the philosophical viewpoints and general characteristics of the chief school administrators in the project schools might provide insights into factors influencing this achievement.

In this project, structured interviews were held with the chief school administrator in all the participating schools in an effort to determine their viewpoints toward certain philosophical issues which could effect the school environment. The results of these interviews are indicated in Table 1 which follows.

As may be noted in Table 1, British school administrators viewed academic ability as largely a combination of both heredity and environment, whereas, American school administrators were almost equally distributed along the heredity-environment continuum. The overwhelming majority of these administrators viewed the best society as one which was a participatory democracy. A small minority of British administrators felt the best society to be one that was organized as a meritocracy (8.3%) and a small minority of American administrators felt the best society to be one organized as an egalitarian democracy (14.2%)

As a group the British administrators emphasized that the responsibility of the school to the student lies in the cultivation of the whole child; however, in both the structured interviews and follow-up discussions, American school administrators seemed less certain and they supported cultivation of the intellect and cultivation of character to only a slightly lesser degree than cultivation of the whole child.

Again, in item four, a clustering of the British responses indicated the development of participating citizens discharged the school's responsibility to society. American principals were less sure and their responses were again distributed along the scale although 35.7% of them did agree with their British counterparts.

While a plurality of both American and British educators believed that the school should provide education which promoted creativity and problem-solving (35.7% and 48.6% respectively), there was also significant interest for the belief that education should promote mental discipline as well. More Americans

TABLE 1

PHILOSOPHICAL VIEWPOINTS OF
CHIEF SCHOOL ADMINISTRATORS

I. Academic ability is largely:

	Inborn		A Phenotype		A result of environment
Br. Isles	8.3		75.9		16.6
U.S.A.	21.4	14.2	28.5	14.2	21.4
	1	2	3	4	5

II. The best society is one that is organized as a:

	Hereditary Aristocracy	Meritocracy	Participatory Democracy	Egalitarian Democracy	Welfare State
Br. Isles		8.3	91.6		
U.S.A.			85.6	14.2	
	1	2	3	4	5

III. The responsibility of the school to the student is discharged by:

	Cultivation of the intellect		Cultivation of character		Cultivation of "the whole child"
Br. Isles		8.3		8.3	83.3
U.S.A.		14.2	21.4	35.7	28.6
	1	2	3	4	5

IV. The responsibility of the school to society is discharged by developing:

	Educated Individuals		Participating Citizens		A good Society
Br. Isles			83.3	8.3	8.3
U.S.A.	21.4	21.4	35.7	14.2	7.1
	1	2	3	4	5

V. Because of the nature of education the school should promote:

	Mental Discipline		Creativity and Problem Solving		Specific Training
Br. Isles	16.6	24.9	41.6		16.6
U.S.A.	14.2	14.2	35.7	14.2	21.4
	1	2	3	4	5

VI. The Headmaster or Principal should provide leadership that is:

	Autocratic		Democratic		Laissez-faire
Br. Isles			66.5	33.2	
U.S.A		64.2	35.7		
	1	2	3	4	5

VII. The Headmaster's or Principal's leadership should be based on preparation that is largely and primarily:

	Academic		Professional		Exerience in "How to win friends and influence people"
Br. Isles	24.9	49.8	16.6		8.3
U.S.A.		28.5	57.1	7.1	7.1
	1	2	3	4	5

N: Br Isles = 12
U.S.A = 14

educators believed that training should be provided for specific vocations.

A surprising response, in view of the autocratic image of British administrators often perpetuated through the popular media (films, TV, and publications) was the indication of the British administrators that leadership should be democratic (66.5%) or a type of laizzes-faire democracy (33.2%). American administrators on the other hand showed an inclination towards democratic leadership with autocratic overtones (64.2%). The final item on the structured interview scale was concerned with the preparation for educational leadership.

As previously noted in this chapter, professional preparation is largely unknown in the British Isles and as might be anticipated, only 16.6% of the British administrators saw this kind of preparation as essential to educational leadership. Similarly, as might be anticipated, the majority of American school administrators felt this preparation was essential (57.1%). The majority of British administrators were more inclined to view academic preparation or academic coupled with professional preparation as desirable. Small minorities of both groups felt that experience in "how to win friends and influence people" was perhaps the most singularly important preparation for success in school leadership.

School administrators in the 14 United States secondary schools and 15 United Kingdom schools were asked to complete a questionnaire which would provide data for comparing profiles of the "typical school administrator" in the United States and United Kingdom schools comprising the project sample. This profile is presented in Table 2.

The typical school administrator in the United Kingdom tends to be in his early 50's whereas the American school principal is in his early 40's. The United Kingdom headmaster has also served more years as a full-time teacher (12 years versus 7 years); has served nearly twice as long in his present

TABLE 2

SELECTED CHARACTERISTICS OF THE CHIEF SCHOOL ADMINISTRATORS OF 15 BRITISH AND 14 U.S.A. SECONDARY SCHOOLS

		U.S.A.	Br. Isles
General:	1. Average age	42.8	50.3
	2. Average years teaching experience	7	12
	3. Years service in present position	5	10.5
	4. Live in community where school is located	yes	yes
Training:	5. Position prior to present job	1. Teacher 2. Principal in another school 3. Teacher or counselor with some administrative duties	1. Headmaster in another school 2. Deputy Headmaster 3. Teacher
	6. Average number of years of college or university training	5	4
	7. Major field of preparation	1. Soc. Sci. 2. Phys. Educ. 3. Math	1. Math 2. Science 3. English Soc. Sci. 3. For. Lang.
	8. Special graduate course	yes (100%)	no (100%)
Professional Activities	9. Average number of conference, seminars & other professional meetings attended per year	6	3
	10. Average number of memberships held in professional associations	3.5	2
	11. Number of books read related to education	3.3	3.1
	Number of books read not related to education	3.0	3.8
	12. Number of professional periodicals subscribed to	3.1	0.5

position and is more likely tohave been a deputy headmaster or head of another smaller school before assuming his current position. On the other hand, the American principal has spent slightly more time in college or university training, has without exception earned a master's degree and an administrator's certificate and has taken specific college or university courses in the field of administration and supervision. The American administrator is also more active in joining professional organizations and attending professional meetings. Both are active in reading books reading books related to education and also outside the field of education. The American principal, however, is more apt to subscribe to periodicals related to education.

As indicated earlier in this chapter, more British administrators in the study devote part of their time to classroom teaching. Approximately half of the United Kingdom sample taught at least one class, whereas less than one-third of the American principals did any teaching. The British administrators also spent more hours (4.8 hours versus 2.6 hours) per week in classroom visitation and supervision of instruction. The American principal, however, spent nearly twice as much time in office and administrative routine. Administrators in both samples spent approximately ten hours a week in meetings with faculty, pupils, parents, and other individuals or groups.

School administrators in both the United States and the United Kingdom generally received some professional assistance in administering their school program. This person was most frequently a deputy or assistant principal, but this assistance some times took the form of released time for department chairman, guidance or career counselors. It is also usual for each school administrator to have some form of secretarial assistance. In the smaller schools in both samples, this person was apt to be a part time secretary, whereas the larger schools tended to have as many as two and three fulltime secretaries.

Various duties of school administrators were listed and school principals (USA) and headmasters (British Isles) were asked to estimate the number of hours per week devoted to each of these activities. The results of their responses are indicated in Table 3.

School administrators were also asked to rate the relative importance of various ways in which they assess the success of their school program on a scale ranging from 1 (of little importance) to 5 (very important). The mean ratings for each criteria were noted in Table 4.

4. Curriculum:

While the curricular offerings of the secondary schools in both the United States and Great Britain are planned by the individual school staffs, there are external factors which tend to govern at least a core of course offerings. In the United Kingdom, curricular programs will usually be geared to preparation for the various examination certificates. In addition, programs may also have to be approved by Her Majesty's Inspectors who are responsible for particular school districts. In the United States "graduation requirements," as established by state departments of education, usually dictate a core of required courses. In both the United States and the British Isles, all pupils, regardless of the types of program or secondary school they were enrolled in, pursued some form of English, mathematics, social science, science and physical education. The chief differences noted between curricular offerings of British and American secondary schools was the wider variety of course offerings in the British schools and more flexibility--also more complicated--scheduling procedures whereby many British students would be carrying as many as nine or ten different subjects at the same time. British programs also tended to have a greater variety of offerings in the fine arts and foreign languages and, contrary to American popular opinion, placed a greater curricular emphasis

TABLE 3

TIME SPENT IN SELECTED ACTIVITIES BY BRITISH AND U.S.A. CHIEF SCHOOL ADMINISTRATORS

Duty	Hours Per Week	
	U.S.A.	Br. Isles
1. Office and administrative routine	10.7	5.5
2. Classroom visitations and supervision and supervision of instruction	3.6	5.8
3. Contacts with pupils (interviews, discipline, advising, counseling, etc.)	4.5	3.4
4. Contacts with faculty (faculty or group meetings, individual conferences with teachers)	3.2	3.2
5. Attendance at assemblies	0.2	1.0
6. Meetings with parents, consultants and visitors	4.3	4.7
7. Administrative demands related to school meals, transportation and building maintenance	1.5	3.4
8. Attendance at meetings of adult community groups	2.5	2.4
9. Planning and developing activities	2.5	3.6
10. Miscellaneous activities not listed above	5.0	4.8

TABLE 4

IMPORTANCE OF VARIOUS CRITERIA IN ASSESSING SCHOOL PROGRAM SUCCESS AS PERCEIVED BY CHIEF SCHOOL ADMINISTRATORS

Criteria	U.S.A.	Br. Isles
1. Results of standardized tests	3.0	4.1
2. Responses from parents and patrons	3.2	4.2
3. Responses from present and former pupils	3.3	3.3
4. College or university success	4.8	4.9
5. Adjustment into the world of work	4.8	4.6
6. Systematic follow-up of students after leaving school	3.3	2.0
7. Periodic evaluation by staff	4.9	2.8
8. Reports of advisors, inspectors and outside experts	3.1	4.8
9. Responses from community organizations	1.8	1.5
10. Objective data such as school absences, tardiness, rules infractions, academic failures, school leaving	3.4	3.3

on physical education and games activities. It should be noted, however, that the significance attached to varsity athletics in most American secondary schools is nowhere apparent in the schools observed in this project in the British Isles.

5. Faculty:

(a) Preparation

In any educational institution the faculty is the key ingredient in the success of the school's curriculum. It was therefore obvious that any study comparing the academic achievement of secondary school students should also examine the faculties in the participating schools. This study therefore examined preparation, salaries and certain personal characteristics of the secondary school teacher in the British and United States high schools.

Professional education of teachers in the United Kingdom differs significantly from the pattern of teacher preparation familiar to educators in the United States. In the United Kingdom the majority of teachers are prepared in three year college training programs. These programs consist of academic subjects, pedagogical subjects in education, and supervided field experiences. Teaching certificates, not degrees, may be obtained through these programs. An alternate route, usually pursued by those who wish to teach in grammar or technical schools requires students to attend a university and receive an arts or science degree which is followed up with a years professional course work in the education department of a university. In the United States, certification or licensing which permits one to teach, requires a minimal four year period of preparation, culminating in an udergraduate degree. Such programs usually provide for course work i n both the Arts & Science and professional education. In addition, a variety of experiences, including supervised teaching is provided in practically all teacher training programs in the United States. While

many of these teacher preparation programs are conducted in colleges, that are essentially devoted to this purpose, most of the large universities typically include teacher preparation programs.

A comparison of the teacher preparation backgrounds of faculties in project schools indicated that 61% of the United States teachers had earned a Bachelor's or undergraduate degree (four years training), and an additional 35% had gone on to complete master's degree programs. By contrast in the United Kingdom 27% had completed four year degree programs and an additional 28% had gone on for a fifth year or more of training. Forty-five percent of the British teachers had completed three years or less in college or university programs.

A recent study previously referred to in Chapter II, conducted through an Office of Education grant at the University of Toledo, noted the following interesting differences of programs of teacher education in the United States and the British Isles.

The majority (68%) of the teachers in the United Kingdom schools received their first degree from universities, while the two year teacher training college was next in degree of frequency. In the United States teacher sample, the university was also the type of institution from which the majority (61%) received their first degree while undergraduate liberal arts colleges were the second most popular type of program. While most American teachers had participated in in-service training activities as well as attending lectures and short seminars over the past two year period, the vast majority (82%) of the United Kingdom teachers had not received any additional training during this period of time. In this regard it perhaps should be noted that the galaxy of "summer school" workshops, short courses and conferences available to teachers in the United States are rarely found on the campuses of colleges and universities during the summer months in the United Kingdom.

(b) Pay

While considerable discrepancies may be noted between salaries paid to teachers in the British Isles and the United States, salary comparisons are perhaps inappropriate across countries, as they are often within this country, due to factors such as cost of living and average earnings compared to other professions within the country. Perhaps of greater significance is the fact that in the British Isles all tax supported schools pay the same for teachers with equal qualifications and responsibilities. In the United States, however, wide variations in salary schedules exist even among schools in the same states and counties with individual school districts often vieing with one another for the best qualified teachers.

(c) Personal Characteristics

In this project a teacher questionnaire was designed (see Appendix) to compare selected characteristics of teachers in the project schools in the United States and the British Isles. Certain training characteristics of these teachers have already been discussed in earlier paragraphs in this chapter. It now might be interesting to briefly examine some of the other differences. For example, in the United States schools there was nearly an equal representation of the sexes with 53% of the instructional faculties composed of male teachers and 47% composed of females. By contrast the United Kingdom distribution indicated a better than two to one ratio of males to females (68% males; 32% females).

United States teachers as a group were slightly older than their British counterparts (39 average age, United States teacher versus 37 average age of the British teacher). Moreover, nearly 10% of the British sample had not yet reached their twenty-first birthday. Also, only 3% of the British sample was above sixty years in age while 14% of the American sample had reached the

"golden years." It was interesting to note that nearly one-fourth of the teachers in both samples did not reside in the community or area served by the school in which they were employed. Most teachers in both samples were, however, active in community organizations such as civic and church groups in communities in which their school was located. The majority of teachers in both samples felt that they were actively involved in their communities although significant minorities felt that they were no more influential than most community residents. While the majority of the United States teachers felt that they belonged to the community, and it was their "home" slightly more than one-half of the United Kingdom sample indicated that they did not consider the community in which they worked as their home. Twenty percent of the American teachers and 17% of the British indicated that they did not feel very close to their school communities.

6. Other Characteristics

(a) Special services

Both British and American educational authorities provide a number of services which are supplementary to the regular academic program. In common, both systems provided free transportation for students living beyond the "walking limit," school meals at economical prices, special education programs for the handicapped and health services. The distinguishing differences were most noticeable in the somewhat more extensive free health service available to British school age youth as a part of the National Health Service Program and in school pupil personnel and guidance programs. These latter programs in the United States schools tended to be more comprehensive in nature, providing for individual and group counseling of an academic-vocational as well as a personal-social nature, the dispensing of occupational and educational information, pupil assessment techniques and consultation to faculty

and parents. Similar British programs were primarily limited to psychological testing and vocational direction and placement. In this regard, we should note the work of the Youth Employment Service in the British Isles. The personnel of these offices, while not a part of the regular school staff, work in close collaboration with the local schools and seem to form an effective link between Youth Employment needs and community job opportunities.

(b) School activities

Extra-class activities are popular in the secondary schools of both the United States and the British Isles. For the most part these activities were of an artistic, dramatic or athletic nature, in addition to supporting educational activities (i.e., debate teams, foreign language groups, etc.). The chief distinction noted was a greater emphasis in the British school on activities of an academic nature and, by virtue of their locale, more organized trips to other countries. The American secondary school on the other hand, placed a far greater emphasis on varsity athletics and typically drew large supporting crowds of both students and towns people to local sporting events. Also noted was the greater emphasis in most American secondary schools on military type precision marching bands (often used to provide "color" for local athletic contests) while many British institutions seemed to emphasize orchestra and choral groups. In both systems the attention accorded these various activities have been criticized, reviewed and revised in recent years, but appear, if anything, to have an even more secure place in the secondary school of today.

7. The Teaching of Selected Subjects in Secondary Education

Two subject matter areas, language arts and science, were selected for observation studies by recognized United States authorities representing these areas. Their descriptive reports are presented in the paragraphs which follow.

(a) Language Arts

Even the casual visitor is struck by certain obvious differences between the teaching of English in the secondary schools of America and in the British Isles. For one thing, the organizational structure does not include age groups that directly coincide. The "forms" or classes of United Kingdom secondary education, usually six of them, although there may be more or fewer, patently include a wider age range than the three or four high school years in the United States. The five or six forms or classes also encourage continuity of student's experience in English instruction under a single department head for up to six years.

Ability grouping, or "streaming" as it often is called in the United Kingdom, likewise influences the composition of English classes. Such grouping may be further sharpened by the existence in many school systems in the British Isles of three types of secondary schools: Secondary grammar schools (university preparatory); technical secondary (for the technologically inclined); the secondary modern school for the large remainder. As a result, a top "stream" of students in a grammar school (<u>already</u> a select minority) represents a very academically competent cluster. Advanced work can be carried forward even more easily because of the small enrollments (by United States standards) in English classes at the "top-top" ability level. As few as eight and not more than 15 were in such advanced grammar school groups in the classes visited at random by the project consultant in language arts.

It must be pointed out, however, that the United Kingdom is in the process of abandoning the "grammar-technical-modern" types of schools in favor of "American style" comprehensive secondary schools. While "streaming" will continue, in the near future, presumably, it will be done for the most part within one school rather than among <u>and</u> within several schools. It is an understate-

ment to say that the process of change to the comprehensive school was viewed with mixed emotions by teachers of English and administrators in the British Isles. The climate of opinion does not reflect opposition--even among teachers in the grammar schools--so much as it mirrors uncertainty and uneasiness with respect to modifications in methods as less stratified student bodies become the rule.

In addition to those already mentioned, at least six other overt differences can be noted between contemporary United Kingdom and United States English teaching.

(1) There is a great deal of instructional autonomy enjoyed by the English Heads and their teaching associates in the United Kingdom secondary schools. Formal curriculum bulletins in the Stateside sense seem to be unknown insofar as mother tongue teaching is concerned.

(2) There is, nonetheless, probably more similarity (in a given form or class) in methods and materials than in a socioecologically comparable group of American high schools. Two probably explanations: First, on the whole the United Kingdom is somewhat less diversified socioeconomically and ethnically than the United States. Second, many secondary teachers of English in the British Isles apparently share rather similar grammar school and university preparation, hence developed a mutual "inner curriculum" which suggests what is "right" or "fitting" in the classroom.

(3) Reading, expressive writing or composition, language usage, and literature are taught "functionally"--i.e., for use in the classroom and in fundamental interrelationship--in the 12-18 age range. Reading skill is an integral part of studying literature; acceptable

usage is an integral part of expressive writing. "Streaming" policies, which served to reduce differences in performance within a class, is judged to be important by the teachers who feel that such grouping facilitates the development of language skill. In other words, a narrow range of ability is construed to permit the instructor to deal more easily with English skill as a whole rather than to deal with such artificially separated components as usage, reading, literature, or spelling.

(4) The general content of annual examinations in the use of English remains one of the major influences mediating the nature and content of teaching. A teacher has great latitude in selecting and spending time on given language skills and knowledge, but he and his students also have a clear idea of the overall content and design of the forthcoming annual examinations.

(5) The nature of the examinations appreciably determines what is studied in a given class. To illustrate: while the study of a specific play by Shakespeare is not required, the reading of at least some of his work is mandated by questions such as these:

(1) "The course of true love never did run smooth."

What complications disrupt the courtship of Bassanio and Portia or Viola and Orsino or Miranda and Ferdinand or Romeo and Juliet?

How does Shakespeare use these complications dramatically?[1]

The same blend of permissiveness within a defined area of study obtains with respect to "composition," and to "interpretation and language."[2]

(6) As implied in points (1) - (5) above, instruction and content in English in the schools sampled tended for part of each week to be quite similar because of the spring examinations. Again, because of departmental autonomy, there also was a great range in practice in other parts of the total program. Phrased in another way, the examinations provided a required foundation while teacher autonomy encouraged the exercise of professional judgment and concomitant variations in procedure and content.

Differences in the "educational climate" of the United Kingdom and the United States classrooms.

It may seem temerarious, if not presumptuous, to attempt to make distinctions between the classrooms of teachers of English in America and in the United Kingdom. However, sustained observation suggests that there are at least some distinctions that can be made.

For one thing, although the students are in no way lacking in spirit, there is less mischievious and disorderly behavior in the United Kingdom schools sampled than can be found in many United States classrooms. At least some superficial explanations suggest themselves:

(1) Many United Kingdom classes are small ones (7 - 20 pupils)

(2) A formality in dress and manner lingers and is reflected in pupil demeanor. (School uniforms are still prevalent; some students still rise and stand at attention when the headmaster enters a room. Also, many teachers continue to wear academic robes when at school-)

(3) The "dominant classroom features" which are listed below, create an atmosphere which discourages many forms of overt mischief.

Also, many pupils display a marked degree of motivation. Whatever one's attitude may be with respect to the tensions and pressures of examinations, the

tests seem, in their United Kingdom settings, to have impressed even the youngest of secondary children with the fact that it is "produce or perish" with respect to many of the university or vocational goals they harbor.[3] Family pressure, so several teachers said, was a powerful pupil-motivating force--especially among classes of society which, in recent decades, have begun to see an education as a means of eliminating (or at very least of crossing) class lines in the British Isles.

Yet another difference in the United Kingdom classroom atmosphere--one which facilitates mother tongue instruction--is the fact that the learner's work in English and in history are interrelated in a way that they are not linked in the United States. The language study and history work of students in the British Isles often automatically reinforce one another because of the manner in which they coincide. A group of young Scots reading Macbeth clearly illustrated this point. They already knew the background of the drama, castles such as Glamis, were within the radius of a few miles, and the language of the characters even now more nearly approximated theirs than it approximated American English. The asset of a heritage of relevant history--one which serves to make literature more meaningful--should not be underestimated as a subtle force tempering the classroom climates of Albion, Northern Ireland, and Scotland.[4]

Dominant features of United Kingdom Classrooms.

While observing in classrooms overseas, the writer employed a 10-item index to classroom characteristics[5] which was developed expressly for the visitations. While it is not a scientific tool, it proved to be useful device for organizing subjective judgments. A summary of ten dominant features of the classrooms surveyed now follows.

(1) Instructional approach. Both observations and statements from English teachers in the United Kingdom indicate that instruction is highly directive

at secondary level. The annual examinations influence much of the work undertaken and the teacher tends to accept personal responsibility for the pupils' mastery of content.

(2) Pupil involvement. Pupil involvement often is excellent and extensive with respect to oral readings, extemporaneous pantomines or dramatizations, sharing in discussion, and so forth. However, such participation is generally limited by the "ground rules" established by the teacher. There is little joint teacher-pupil planning of what shall be undertaken, but the student (especially in upper forms) often share in deciding how work will proceed if their ideas have merit.

(3) Planning for pupil learning. Teacher program planning, intended to help young adolescents progress from where they are to where the teacher believes they can go, is very good. Stress is not on minimum essentials so much as it is on maximum progress.

(4) Teacher presentation of content. The preparation and presentation of content, expecially with respect to literature and the general interpretation of language, often is excellent. While "self-discovery" of meanings by pupils is rare, teachers' dramatically presented readings, interpretation of the significant of the Elizabethan theatre, or explanations of the period backgrounds of "Sir Patrick Spence" are almost uniformly good.

(5) Pupil evaluation. Teachers appear well informed regarding pupils when they have had sufficient time to becmoe acquainted with a given school. Evaluations of pupils tend to be subjective, continuous, and predominantly associated with intellectual growth in the realm of language.

(6) Feedback[7] and remedial action. Efforts to obtain and to analyse feedback from students are informal and vary considerably from teacher to teacher in the more than 40 classrooms visited. While many of the United Kingdom

instructors are genuinely devoted to their students' welfare, the relatively formal content and methods do not encourage a wide range of feedback except in terms of academic progress. Special remedial teachers are not found in the schools, but English teachers almost invariably feel a personal responsibility to provide special assistance to students who seem likely to experience difficulty in learning. Extensive United Kingdom ability grouping in itself serves to provide remedial service since as many as nine performance streams may be found in a single school districts secondary level English classes.

(7) Pupil motivation. Pupils' attentiveness and eagerness to learn is generally impressive in the three counties surveyed.[8] Virtually no overt resistance to instruction was recorded in some 50 hours of visitation. Streaming as well as classes of reasonable size and many academically well-informed teachers are probably important here, although children's awareness of the social and economic importance of an education seems decidedly more of a motivation than in many United States schools.

(8) Teacher motivation. Enthusiasm, effort, and a sense of the importance of his work is evident among virtually all the teachers of English visited and interviewed. In no case can an instructor be labeled apathetic or the classroom atmosphere said to be stagnant. Even allowing for the fact that the English department heads may have chosen superior teachers in some instances, enough were visited at random to insure that a spurious impression of teacher enthusiasm was not inadvertently obtained.

(9) Classroom management. Management of the classrooms is still somewhat authoritarian and formal, but the stiffness and tradition of 20 years ago has been leavened by at least a small tincture of permissiveness.

(10) Classroom atmosphere. As implied earlier, the "feel" of the United Kingdom classrooms generally is pleasantly stimulating rather than harshly

repressive--but it remains teacher-centered. In one department head's words, "When all is said and done, we select what is read and written."

The instructional program in retrospect: trends since the early 1950's

In conclusion, what can be said about the trends in English instruction during the past 15 years? And what comparision--admittedly based on subjective judgment--can be made as to the quality of United Kingdom and United States schools, respectively?

Unmistakably, English language arts instruction at the secondary level in the British Isles has become more flexible, teacher-student relationships (albeit still formal) are more relaxed, materials are more diversified, and an interest in innovation has begun to replace the pervasive mistrust of rapid change which was characteristic of many teachers and administrators one to two decades ago. Also, the secondary schools of the British Isles have begun to find welcoming and voluminous folds in their academic robes for all youth--for the "dull" of yesteryear as well as for the "clever," and doing it rapidly and well.

Both in the United States and in the United Kingdom there has been a narrowing of the gap in educational practice. If schools in Britain, Scotland, and Northern Ireland today more nearly resemble United States schools than they did in 1952 or 1954 it is because United States schools in the last 10 years or so have in turn developed a warmer affection for excellence in command of content even while United Kingdom schools have begun to adopt and accept the stateside concept of a comprehensive secondary school which is designed to promote the development of all youth.

(b) Science Education

Certain aspects of a general selective educational system in the British Isles have exerted a significant influence on the type, content, and scope of

science courses offered in a variety of schools. As viewed by the project observer they are reported as follows:

England:

All aspects of Education in England are the responsibility of the Secretary of State for Education and Science. The Department of Education and Science does not prescribe any science textbooks or curricula, but it does set minimum standards of general content, and controls science teacher training as well as determining principles for teacher qualification.

Science education requirements are issued along with other statuatory regulations addressed to local education authorities and other boddies. This system permits real autonomy for determination of science curriculum by education committees of publicly elected local authorities, with responsibility widely distributed. Since 1964, several independent bodies have begun to exert an influence on science instruction. The Schools Council for the Curriculum and Examinations is one such body that stimulates and supports school-based efforts to reassess science curricula, teaching methods and examinations at the secondary level. Other non-professional and non-profit associations are indicating an interest in science education but the interest and progress appears less active than in other subject areas. Most new science curricula developments deal with the problems of the effort of examination pressures on syllabuses and the relevance of current science courses for young school learners. The Schools Council is working closely with the Nuffield Foundation which sponsors the preparation of new and more wide-ranging science and mathematics courses leading to Ordinary and Advanced levels of the General Certificate of Education as well as courses for secondary pupils who will not be taking examinations.

Local education authorities decide types of schools and are responsible for the general direction of curriculum and content, but science as well as other

curricula decisions are made by the head teachers of schools. Even though external examination pressures force a high degree of curricular conformity and uniformity, head teachers are free within wider limits to organize science curricula according to their own ideas, dependent upon their initiative, community needs and demands. Science teachers are generally not bound by offical syllabus instructions, teaching methods, and adopted textbooks. Science content ranges from highly sophisticated levels to paper cut-out nature study.

England's system of three types of secondary schools--grammar, modern, and technical--has been based on a rigid separatist system, with entry to the various types generally dependent upon results of tests taken at about the age of 11 (called the "Eleven Plus" exams). In recent years, non-selective, comprehensive, district secondary schools have been established. In them, science courses are offered to a full range of secondary pupils from ages 11 - 18. The impact of the separatist system is hard-felt in science curriculum offerings. Grammar school science curricula, geared for the upper 20-25% of youth passing the Eleven Plus external examination, achieves the highest degree of content sophistication, teacher qualification and preparation, instructional media and equipment, minimal class size, and pupil interest. With some exception, the modern secondary school visibly suffer from overburdened class size, some lack of instructional media and equipment and the general homogeneous grouping of disinterested and/or lesser ability pupils.

Scotland:

Science curricula, teacher's qualification, and class size is governed to a greater extent in Scotland than in England by regulations from the Secretary of State and Scotland's School Code. Generally, Scotland's primary education lasts from 5 to 12 years of age, as opposed to England's age 11.

Science curricula are offered in Scotland's (1) junior secondary schools, providing courses normally lasting for 3 years and designed for students who plan to leave school at the statuatory leaving-age of 15 (to be raised to 16 in 1970-71); (2) schools which in addition offer courses leading to the Ordinary grade of the Scottish Certificate of Education; and (3) senior secondary schools which provide certificate courses of 4, 5, or 6 years. Most of the science classes are co-educational, but several old schools admit only girls or boys. The science courses in each type of school are differentiated in character to adapt to the varying needs and abilities of pupils: i.e., senior secondary schools for pupils intending to remain in school beyond the age of 15, are more academic in nature than are those offered in junior secondary schools. The latter also offer greatly modified courses, generally practical in content and treatment (of a natural history or nature study approach with minimal ecological orientation) for pupils of limited ability. This traditional pattern of Scotland's secondary school science education is changing with the establishment of a number of comprehensive type schools in which greater flexibility in content depth and pupil mobility is allowed.

Science subjects, of varying degrees of differentiation in content depth and approach, are offered in both the non-certificate secondary (3-year junior) and certificate secondary (4, 5, and 6 year senior) curricula. A general science approach prevails in non-certificate curricula while a more sophisticated, academic science approach is offered to certificate course students at least in some stage of their courses.

North Ireland:

North Ireland possesses a statuatory system in three successive stages -- primary, secondary, and further education--with the same age range as in England. Education is administered centrally by the Minister of Education and by eight

maintained grammar schools. Science course offerings in these schools are college preparatory, especially at the 5th and 6th Form levels. The remaining 70-75% of pupils are eligible to attend secondary modern technical or special schools. Science offerings in these schools are more practically oriented, of a general science nature, and only rarely are the curricula widened to include academic approaches. Comprehensive schools are closing the ability and availability gap, but generally the separatist system still prevails and influences the science course offerings.

North Ireland's transfer scheme is similar to England's, however Scotland has raised the transfer age from 11 1/2 to 12 1/2. Each Education Authority in Scotland operates a transfer scheme approved by the Secretary of State which appears to give somewhat similar results as those of England's Eleven Plus.

A general pattern of secondary science offerings includes some science classes for all pupils within the block of Form ONe to Five. In most schools, science classes in Forms One through Three are required, although this requirement is sometimes cut to Forms One and Two. These offerings are usually of a general science nature, concentrating on a survey of sciences, and meet daily for 40-45 minute periods. Beyond the required sequence, science classes may be electives. Those pupils wishing to concentrate in the science area commence with Form Three or Four with emphasis on either the Physical Sciences (Physics or Chemistry) or the Biological Sciences which tend to break down into the three categories of Botany, Zoology, and Micro-Biology.

Forms Five, Six, and sometimes Seven are offered in academic oriented grammar schools and are geared for qualification for student Advanced level certification exams. The influence of certification preparation and qualification bears directly on the science offerings. In non-certification schools, the drop-out student ratio at age 15 eliminates Forms Five and Six; teachers do not possess

the required honors bachelors degree to teach certification-qualifying science classes; students are not college preparatory and there fore not interested in more than a practical approach and are not eligible for certification examinations. There are rare instances of non-grammar school students wishing to attempt certification exams: in the science areas this poses manifold problems requiring a step-back to earlier Forms compounded by the availability of study under qualified teachers.

It is to be noted that at the end of the Third Form which would be equivalent to United States ninth grade (i.e., 15 year-olds) some secondary students concluded their education with a Junior Certificate, while others were non-certificated. These students terminated with minimal general science offerings. As a general rule, secondary students were eligible to take the General Certificate in Education exams at the end of the Fourth and Fifth Forms, usually at the O or Ordinary level.

Secondary schools rarely were able to offer Form Six and Seven science courses because of the problem of staffing and minimal number of students. However, in the academic-oriented grammar schools, courses almost without exception were offered at the Six and Seven Form advanced level. Students concluding their educational program at the terminal end of the Seventh Form underwent extensive objective evaluation in the form of an Advanced Level General Certificate in Education examination and usually University Fellowship and Scholarship Examinations.

In general, scrutiny of the science curricula throughout the British Isles reveals a heavier percentage of courses in the Physical Sciences, emphasizing Physics units in areas of magnetism, electricity, heat, light, sound, simple machines, and forces. Of special note is the fact that lesser emphasis is placed on the inclus ion of biological services in the curricula in general,

dominated by a natural history or nature study approach with minimal ecological orientation.

Grammar school science class enrollments were observed to average approximately 20 students per Form. The equivalent Form science class enrollment in modern secondary type schools appreciably exceeded the statuatory maximum class size of 30.

Teaching Requirements and Attitudes

Science teachers in the British school vary considerably in academic backgrounds. In general, teachers in the Secondary schools commonly possess a three-year sequence Bachelors of Science degree, although some of the teachers possessed a four-year honors Bachelors degree. In contrast, teachers in the academic Grammar schools, without exception, possess a four-years Honors Bachelors of Science degree, with a major in their teaching area as well as additional summer university courses. The concept of in-service training, or a continuous educational program for teachers during the school year, is not practiced.

The general behavior and attitudes of grammar and non-grammar school science teachers engaged in a learning situation is distinctly different. Teachers in the academic oriented Grammar school possess a stronger academic background in orientation to the subject matter and often gave evidence of superior subject teaching and a skillfully challenging of students in the inquiry approach to science instruction. In contrast, teachers in the Secondary schools tended to be plagued by large numbers of students in their classes, no teaching assistants or technicians, an excessive amount of disciplinary control, and limited facilities conducive to science teaching-learning situations.

Teacher morale in the Secondary schools was perhaps adequate but in some instances they tended to confine their teaching role to minimal job standards. In contrast, the general morale of teachers in the academic Grammar schools was

high and gave evidence of an attitude in which teaching was exciting, challenging, and professionally satisfying. It is further interesting to note that in spite of the very general trend for acceptance of the establishment of comprehensive schools throughout the British Isles, academic-oriented Grammar science teachers express a reluctance for this development to take place. A number of them emphatically indicated that they would leave the teaching profession before assuming a teaching role in a comprehensive school.

Student Ratios and Attitudes

In secondary modern type schools, the required Form science class distribution tended toward larger girl enrollments than boys. Upper Form classes (Fourth and above) showed a predominance of boy enrollments in classes of mathematics oriented Physical Sciences, and a predominance of girl enrollments in upper Form Biological Sciences.

In the academic-oriented grammar schools, boys outnumbered girls generally, particularly in the upper limit Forms which offer advanced level Physics and Chemistry. In the advanced Physical Science classes, girls were conspicuous in their absence. On the other hand, girls outnumbered boys in all levels of Biological Sciences.

With respect to school clothes, academic-oriented grammar school students of a particular school all wore a similar jacket and matching trousers or skirts with their school tie. In the secondary schools this pattern tended to persist although a growing number of schools are apparently breaking away from a school uniform and students are wearing conventional clothes. In these latter few schools, teachers were observed to be wearing street clothes. In general, however, most faculty in all type of schools wore an academic gown over conventionally conservative clothes. Science teachers were the only exception in that a number purposefully wore laboratory coats while conduction experiments and demonstrations

involved with chemicals and scientific apparatus.

Students in the grammar schools displayed greater self discipline, self direction and a more consistently highly organized school orientation. Grammar students were observed to be enthusiastic about their science studies, pertinent questions were asked, and a very serious atmosphere prevailed with a high degree of commitment to the experience at hand. In contrast, students in the secondary schools tended to be visibly reserved, less committed to the learning situation, and observably engaged in more freedom and less control in terms of discipline and conduct. The contrast between student morale, attitudes, conduct, ability, and interest in available learning situations in science classes in Grammar, Secondary and Technical schools was significant.

General Review of Science Curricula, Equipment Laboratory Facilities, and Instructional Media

Scientific Equipment, Laboratory Apparatus, and Instructional Media:

Grammar schools possessed far more extensive media for laboratory experiences, demonstrations and related activities. Extensive sophisticated equipment necessary for understanding basic concepts in the physical and life sciences were available. Micro-photo-gammitry equipment with excellent Zeiss equipment was noted in many of the schools. In contrast, secondary schools tended to have minimal laboratory equipment and students were frequently required to rotate through different stations in order to share limited scientific apparatus and equipment.

Laboratory Technicians:

Grammar schools science faculties make extensive use of laboratory technicians. Laboratory technicians numbered three to four per science department in many Grammar schools. In most cases, the technicians were former Grammar school students that had exhibited a competent background in the sciences and

had completed the 5th and/or 6th Form external examination. These para-professional assistants are employed full time and are required to devote one day a week to continue study in a specialized laboratory-technician advanced schooling which culminates in certification as a Laboratory Technician. Without exception these outstanding technicians appear to be competent, enthusiastic about their work and offer significant assistance to science teachers. Frequently unique, novel and highly specialized laboratory apparatus are made by technicians under the direction of a science teacher. Responsibility for setting apparatus for a class or laboratory demonstration, designing and constructing new apparatus, and the tedious task of cleaning up the laboratory at the conclusion of the experiment is effectively accomplished by these assistants. Unfortunately laboratory technicians or the concept of technical assistants at this level are not utilized in the Secondary Schools.

Pilot Programs and Projects in Science:

An instructional televised program in the sciences places emphasis on learning by discovery by the B.B.C. and Independent TV Studios. Programs observed were Mathematics Around You, Discovering Science, and First Steps in Physics. In one of the Grammar schools, Imperial Chemistry Industry Film, (Thames House, North Millbank, London Southwest 1) on Catalysis was being effectively used. In addition to the film, excellent models and three dimensional media were related to the film concepts utilized in classrooms. Other films used originated from the Scottish Central Film Library, (16/17 Woodside Terrace, Charing Cross, Glasgow C3); Rank Film Library (Aintree Road Perivale, Greenford, Middlesex); Ealing Scientific Limited (23 Leman St., London, East 1); and the Phillip Harris Limited, (63 Ludgate Hill, Birmingham W3) films.

The BBC Television (35 Marrylbone, High Street, London W1) included in the autumn the following programs: Discovering Science Series Unit 1, September

18-19, Air and Breathing; September 25-26, What is Air?: October 2-3, Burning and Rusting; October 9-10, Air As A Gas; October 16-17, The Atmosphere, Unit II, the Earth; October 23-24, The Earth in Space; November 6-7, The Structure of the Earth; November 13-14, Metals From the Earth; November 20-21, The Pull of the Earth; and November 27-28, Satellites. At the Physics level, units were observed in the areas of Length, Mass, Time, Velocity, Acceleration, Force, and Motion, Friction, Structure of Matter, Density of Matter, Moments, Balances, Stability, Results in Components, Parallelogram and Triangle of Forces, Work Energy Power, and so forth.

The Nuffield Science Teaching Project materials are destined to be incorporated initially in the Grammar schools and subsequently in the Secondary School. Currently many teachers are using Nuffield's science laboratory materials on a limited basis. When financing of the new materials is available (which is anticipated by September of 1968 and definitely by September of 1969) the Nuffield materials in the sciences will be common in all Grammar schools. It is hoped that within 3-5 years the same apparatus for materials would be available in the Secondary schools.

The Nuffield Science Teaching Project materials were developed by a group of teachers under the able leadership of Mr. Brian Young, Director of the Nuffield Foundation. This impressive project commenced in 1962 and the Association for Science Education of the British Isles endorsed the project. Initially the project objective was geared for a renewal of existing science curricula and a wider study of imaginative ways of teaching scientific subjects. Examination of the materials revealed an attempt to present science in a lively, exciting and intelligent way. Approximately 172 schools were pilot schools in the initial project and as an outgrowth the Nuffield Project Foundation is developing experimental materials and students-teachers texts in the area of Biology,

Chemistry, and Physics. An example of the materials observed in a grammar school at the Fourth Form was the Nuffield Biology Text 4, entitled Living Things in Action (1966), consisting of 18 chapters. Other observed Nuffield biology texts were designed for First Form, Introduction to Living Things, Second Form, Life and Living Processes, Third Form, The Maintenance of Life, Fourth Form, Living Things in Action, and Fifth Form, The Perpetuation of Life. It is noteworthy that school systems planning to adopt the Nuffield scheme are committed to accepting the entire text series, instructional media, laboratory equipment, etc. for the First Form. Following this acceptance, the school will continue with the First Form and the Second Form and thus continue each year until the project instructional media is absorbed throughout the curriculum. Unfortunately, the Nuffield Physics materials are quite expensive, costing approximately 800 pounds. Chemistry and Biology materials are less expensive--both costing approximately 200 pounds.

General Curriculum Comments:

An example of General Science units covered during the Third Form which would be equivalent to ninth grade in the United States include: Time, Distance and Displacement, Speed and Velocity; Newton 1, Definition of a Force; Newton 2, How to Measure Force; Newton 3, Conservation of Momentum; More Work, Heat and Hot, Thermodynamics, Feedom and the State, and Model Making.

A sample laboratory experience from the text book, Physics is Fun, by Jim Jardine Heinemann, Educational Books Limited, 15-16 Queen Street, Mayfair, London, W1, in the area of light centered around a hand stroboscope with student experimentation information given in black print and experimental data in red print. Frequent questions were asked within the body of the textual materials which stimulated further student questioning in the course of experimentation relative to the frequency of a vibrating or rotating object. Inquiry method of learning

was stressed since no answers were printed in the text.

Students in the grammar schools were exposed to sophisticated laboratory materials. In addition to experiments and investigations of the PSSC type, a number of the science teachers were using Nelkon M. Parker's Advanced Level Physics, Melbourne: Wm. Heinemann Limited, 1958, 1961; and in several advanced Form Six sections students were using the United States freshman college general physics text, Physics for the Inquiring Mind, by Eric Rogers.

A Chemistry class of the Sixth Form in one Grammar School was using the text by Durrant, P.J., General and Inorganic Chemistry, London, Longmans, Green and Company Limited, 1962 (46 Groszenor Street, London W1). This text revealed advanced sections in the areas of Colloids, Nuclear Chemistry, Periodic Classification, Atomic Structure, Valency, Electrolytes, Electropotential and Electrolysis, Electrodepotential and Electrolysis.

A number of the schools use an ancillary resource manual entitled Understanding Science, as an enrichment reading document. This excellent monograph is published by Sampson Low, Marston and Low Company Limited, 37 Heregeford Street, London W1. With an annual subscription of 5.4.0, this weekly publication includes a broad coverage of such subjects as Transmutation of Elements, How Fast Does It Fall, Measuring Weather, the Atmosphere and other topics of general interest.

An example of the rather limited approach to Secondary school Biology was found in the observed text, Macklear, D.G., Introduction to Biology, London: John Murray, 1965 (50 Albenmarle Street, London W1). This textual material is used as a basic learning experience for the general certificate examination at the Ordinary Level. A careful examination of the text revealed minimal Ecological orientation, certified in a rationale which stated "Because it would be either too general and vague to be useful, or would deal with specific environments, which would be studied not in a text book, but through individual work." Obviously

this approach varies tremendously from the green version BSCS materials in high school biology. An example of secondary Fourth Form Physical Science set of units included Elementary Dynamics, Mechanical Equivalents of Heat, Electrical Circuits, Heating and Chemical Effects of Currents, Electromagnetic Induction, Gas Laws in Heat, Defects in Vision, and Spectra, Photometry in Light.

Concluding Statements

Separatist system influences on the content and scope of science offerings are significant. Because of the role of the labor government and the influence of a strong political party upon the educational schemes in the British Isles comprehensive Secondary schools may be destined to become common. Tax supported and academically oriented Grammar schools may be eventually phased-out.

The external examinations exert a noticable influence on curricula offerings and methods of teaching in science programs as well as the future status of the student in his academic or vocational career.

All interviewed science teachers expressed a keen interest in future developments in British Isles' science curricula as well as in philosophy and methods being developed in the United States. The Academically-oriented Grammar school science teachers appear to possess a more professional approach to teaching and are involved in more sophisticated programs in contrast with their colleagues in the Secondary schools. Of interest is the fact that the majority of Headmasters in schools were either former Mathematics or Physical Science faculty members and it appeared to be the most common preparatory background. There appears to be a minimal opportunity for science teachers to continue in an in-service program. The contact between colleges and universities and science teachers appeared to be non-existent to minimal.

(c) Mathematics

As with other courses, mathematics in the British Isles is taught according to a fairly standard syllabus and in preparation for the different level examinations. Thus there was a great deal of similarity in what was being taught at each of the various secondary school grade levels in the mathematics in the schools observed in the British Isles. In the United States, however, considerable variety was found and [illegible] were seldom in evidence. This is not meant to imply that the teaching of mathematics was less organized in the U.S. secondary school sample, but rather, that it was less uniform. In the U.S. sample, the textbook used tended to be the guide for course content and the sequence in which it was to be covered.

Modern mathematics was beginning to be taught in the lower levels in the United Kingdom sample, but traditional math was still the vehicle used to prepare students for their examinations at the upper levels. In the United States sample modern math tended to be dominant. The size of mathematics classes in both the United States and the British Isles tended to be smaller than those of the other traditionally required subjects. As a result, there were opportunities for individualizing the instruction and providing tutorial type assistance to students as needed. The United States math teacher did have a considerable number of visual aids commercially prepared and in some classes, even special desks and other classroom equipment designed for math instruction. The British teachers of mathematics on the other hand appeared to have personally constructed most of the visual aids which they were utilizing.

8. The classroom in the secondary school

As previously indicated in the procedures section of this report it was felt that an examination of classroom methodology and classroom atmosphere would be meaningful in the comparison of student achievement.

Tables 5, 6 and 7 present summaries of classroom methodology and Table 8 presents a summary of classroom characteristics. A review of Tables 5, 6, and 7 indicates that class discussion and lecture methods are consistently most popular with secondary school teachers in the subject matter areas studied in this study in both the United States and the British Isles. Differences in methods appear to occur more often between subject matter areas rather than between countries. As has been noted, following the presentation of the previous subject matter methodology tables, there was a general consistency between British and United States methodology with minor exceptions. For example, it is interesting to note that the United States teachers consistently placed a greater emphasis and allocated more time to administering examinations than did their British counterparts. As might be anticipated the differences by subject matter areas included--more time spent in drill and supervised study for mathematics, more time spent in library study in English and more laboratory time for science.

The summary of classroom characteristics does not distinguish observations by subject matter areas inasmuch as little difference was noted across the various subject matter areas or by grade levels. In arriving at these results, indicated in Table 8, ten dominant factors of the classroom were listed for rating on a five-point scale. Participating teachers in the British Isles and the United States sample were asked to rate themselves

on this scale. In addition two ratings were secured by other observers, usually the principal or headmaster and a project staff member. A total of 42 United Kingdom teachers and 49 United States teachers were rated, 116 and 127 times respectively.

As may be noted in the examination of Table 8, U.S. teachers tended to be somewhat less directive than their British colleagues. As might be anticipated where a non-directive approach is used, greater pupil involvement was observed in the U.S. sample. The most significant difference in the ratings was noted in planning for pupil learning where the British teachers received a mean rating of 4.6 as contrasted to the U.S. teachers who received a mean rating of 3.3. U.S. teachers received slightly higher ratings in the encouragement of pupils self-discovery and pupil evaluation, while U.K. teachers received higher ratings for planned feedback, pupil motivation and also teacher motivation. Consistent with their instructional approach and pupil participation, the U.S. teacher was judged as more permissive in the management of his classroom, than his British counterpart. It is noted, however, that in the over-all rating of classroom atmosphere there was little difference between the British and U.S. samples.

TABLE 5

METHODOLOGY ANALYSIS SUMMARY
(All Grade Levels)
Subject Matter - English

Method	Approximate percent of instructional time you use this method in this course	
	Br.I.	U.S.A.
1. Lecture	23.7	16.8
2. Drill	7.7	13.5
3. Class discussion	16.2	31.6
4. Small group activities	6.9	4.0
5. Supervised within class study	15.6	10.3
6. Library study	8.3	6.1
7. Individual projects	5.8	4.0
8. Group projects	5.9	2.4
9. Field trips	0.5	0.2
10. Examinations	5.4	8.9
11. Other Methods	4.0	2.2
	N=20	N=59

TABLE 6

METHODOLOGY ANALYSIS SUMMARY
(All Grade Levels)
Subject Matter - Math.

Method	Approximate percent of instructional time you use this method in this course	
	Br.I.	U.S.A.
1. Lecture	18.9	23.4
2. Drill	15.6	17.9
3. Class discussion	28.3	22.9
4. Small group activities	1.6	2.8
5. Supervised within class study	26.0	19.5
6. Library study	0.4	0.5
7. Individual projects	1.3	0.7
8. Group projects	1.2	0.1
9. Field trips	0.1	.0
10. Examinations	4.5	12.1
11. Other Methods	1.6	2.5
	N=24	=48

TABLE 7

METHODOLOGY ANALYSIS SUMMARY
(All Grade Levels)
Subject Matter - Science

Method	Approximate percent of instructional time you use this method in this course	
	Br.I.	U.S.A.
1. Lecture	26.2	30.6
2. Drill	0.6	7.3
3. Class discussion	16.8	19.8
4. Small group activities	28.1	6.7
5. Supervised within class study	7.5	9.1
6. Library study	1.6	1.7
7. Individual projects	4.8	3.3
8. Group projects	3.1	3.2
9. Field trips	1.0	1.8
10. Examinations	3.5	7.6
11. Lab.	5.4	8.6
12. All others	2.5	0.5
	N=18	=28

CLASSROOM CHARACTERISTIC INDEX

Ten dominant features of the classroom were listed for rating on a five-point scale. Extremes for each rating were indicated.

1. Instructional approach:

1	2	3	4	5
	U.K. 2.6	U.S. 3.5		
(Directive)				(Nondirective)

2. Pupil Involvement:

1	2	3	4	5
		U.K. 3.7	U.S. 4.4	
(Spectator)				(Participation)

3. Planning for pupil learning:

1	2	3	4	5
		U.S. 3.3	U.K. 4.6	
(Pupils who are able move from a predestined beginning to a predestined ending)				(Pupils moved from where they are to where instructor believes they can go)

4. Teacher presentation:

1	2	3	4	5
		U.K. 3.1 U.S. 3.6		
(Teacher presentation of facts)				(Self-discovery by pupils)

5. Pupil evaluation:

1	2	3	4	5
		U.K. 3.9	U.S. 4.1	
(Infrequent, unplanned, and subjective)				(Planned, frequent, and objective)

6. Feedback and remedial action:

1	2	3	4	5
	U.S. 3.0	U.K. 3.9		
(Unplanned and unprovided)				(Planned and provided)

7. Pupil motivation: (intent to learn)

1	2	U.S. 3.2 U.K. 3.4	4	5
(Inattentive and/or resistant to learning)				(Attentive and eager to learn)

8. Teacher motivation: (intent to teach)

1	2	U.S. 3.7	U.K. 4.0	5
(Apathy and stagnation)				(Enthusiasm and effort to teach)

9. Classroom management:

1	U.K. 2.9	U.S. 3.7	4	5
(Authoritarian)				(Permissive)

10. Classroom atmosphere:

1	2	U.K. 3.7 U.S. 3.8	4	5
(Repressive)				(Stimulating)

CHAPTER VI. THE ACADEMIC ACHIEVEMENT OF SECONDARY SCHOOL STUDENTS IN THE UNITED STATES AND THE BRITISH ISLES

A. Experimental Design and Statistical Procedures

Statistical procedures used in the present study were designed to take fullest advantage of the available data, while at the same time taking into account the different kinds of variables examined. In order to describe the experimental design underlying this study, it will first be necessary to list the 21 variables selected for analysis. These variables fell into three general categories: discrete-valued and continuous independent variables, and (continuous) dependent variables. They are listed below:

Independent Variables	Definition
A. Discrete-valued (factors)	
1. Country	United Kingdom, U.S.
2. Sex	Boys, Girls
3. Grade	7th, 8th, 9th, 10th, 11th, 12th
4. Ability	IQ 110, IQ 110
5. Most important	Questionnaire item ____
6. Community closeness	Questionnaire item ____
7. Circle	Questionnaire item ____
8. Boy admired	Questionnaire item ____
9. Girl admired	Questionnaire item ____
B. Continuous-valued (covariates)	
10. Age	Age in years
11. Language GPA	Grade point average in language classes
12. Science GPA	Grade point average in science classes
13. Overall GPA	Grade point average in all classes
14. Pre-test reading score	Raw score obtained on reading achievement test score at beginning of test year
15. Pre-test language score	Raw score obtained on language achievement test score at beginning of test year
16. Pre-test math score	Raw score obtained on math achievement test score at beginning of test year
17. Pre-test science score	Raw score obtained on science achievement test score at beginning of test year

Dependent Variables

18.	Reading gain	Numerical difference between post-test and pre-test raw score for reading
19.	Language gain	Numerical difference between post-test and pre-test raw score for language
20.	Math gain	Numerical difference between post-test and pre-test raw score for mathematics
21.	Science gain	Numerical difference between post-test and pre-test raw score for science

The basic experimental design was that of factorial analysis of covariance. Because the number of variables was large, and the number of observations in some instances comparatively small, it was not possible to generate and analyze a fully-crossed factorial design having observations in each cell for each of the factors, covariates, and dependent variables cited above. Instead, a decision was made to use two sets of less-comprehensive yet complete factorial designs, in which subsets of independent and dependent variables could be chosen both on the basis of theoretical relevance and according to their ability to form fully-crossed designs.

These two sets of factorial designs were as follows:

1) Design set #1: A set of four comprehensive 2x2x6x2 factorial analysis of covariance designs, in which the factors were country, sex, grade, and ability; dependent variables were reading gain, language gain, math gain, and science gain; and covariates were age, language GPA, math GPA, science GPA, overall GPA, and pre-test score appropriate to the particular dependent variable being examined.

2) Design set #2: A set of twenty smaller 2xk factorial analysis of covariance designs, in which the factors were country and one of the five "psychological" variables ("most important," "community closeness," "circle," "boy admired," and "girl admired"); dependent variables were reading gain, language gain, math gain, and science gain; and covariates were age and pre-test score appropriate to the particular dependent variable being examined.

Each individual design in Design Set #1 was run once with and once without covariates. Those in Set #2 were only run with covariates. Thus, a total of 28 individual analysis runs were made. By treating designs both as

an analysis of variance (ANOVA) and as an analysis of covariance (ANOCVA) design, it was thus possible to determine change in both the direction and significance of findings when covariates were added in.

The computer program used was BMD X-64, "General Linear Hypothesis," from the UCLA Biomedical program package service. BMD X-64 was used because it is designed to handle factorial analysis of variance and covariance designs in which cell frequencies are unequal, and because it enables the experimenter to isolate and assess the significance of the contribution of each covariate, and for all covariates taken together. All 48 program runs were made on Indiana University's CDC 6600-6400 system. In all cases, significance levels for F were reported in terms of .05, .01, or .001 alpha levels.

Analysis results were prepared both in terms of standared individual ANOVA and ANOCVA tables, showing main and interaction effects for each subset of factors and covariates and also in comprehensive summary tables, allowing comparison of results across dependent variables. Main effect and interaction effect profiles are presented for several of the statistically significant effects found, showing differences between factor level means both before and after adjustment for the effects of covariates.

B. Summary of Findings

1. SUMMARY OF GENERAL ANOVA FINDINGS: COVARIATES OMITTED

Table 9 presents a summary of the general ANOVA findings with covariates omitted. An examination of this table suggests that Country was very significant for all kinds of gains except Math and that Grade was very significant except for Science gains. Ability was significant for Reading and Language gains.

In the interactions one may note some significance in the interaction between Country and Sex for Reading and Language but not for Math. For Country by Grade, the results indicate high significance for Language gains and Math gains but not for Reading or Science gains. For Country by Ability high significance was recorded for Language gains only. Slight significance may also be noted in several interactions of higher order (2nd and 3rd order interactions,) the largest of which is the correlated action between Country, Sex, Grade, and Ability in Reading gains only. A review of Table 9 indicates that Country and Grade had significant main effects upon most gain scores and as might be anticipated, that the interaction between Grade might be the more important one.

2. SUMMARY OF GENERAL ANOCVA FINDINGS: COVARIATES INCLUDED

Table 10 with covariates included tells a different story from Table 9 when covariates were omitted. When gain scores are adjusted for covariance, it may be noted that the most important independent variable was generally Ability alone but that the significance of each factor and the interactions of most factors tended to decrease in many cases. Country was still significant, however, in all four kinds of scores. Grade was also still significant, except for Science. The most important two-way interaction cross-gain score was Country by Grade. The F scores for covariances taken as a whole were very large and were significant at the .001 level for all kinds of gains. This suggests then that one must take into account the effects of the covariates in interpretation of the differences.

Age per se was not significant compared with all covariates as a whole. An examination of Language GPA indicated it is very significantly related to Language gains, as might be expected, and somewhat less to Math gains and even less to Science gains. Math GPA, which is the next covariate, was very significant with relationship to Math gains, which was to be expected. Science GPA was very significant in relation to Science Gains only. Overall GPA was only slightly related to Readings gains. These data thus suggest very explicit kinds of relationships between appropriate kinds of grades and appropriate kinds of gains. Thus, upon examination of the Table, Summary of General ANOCVA Findings: Covariates Included, we may conclude that when the covariates are adjusted, the covariates themselves are, in general, very significant and for the most part, more important than anything else except Ability. This conclusion might be drawn from the size of the F scores.

Another covariate was the pre-test score for each kind of gain, so for example, there is a pre-test on Reading and then the Reading Score gains resulting from the pre-test minus post-test scores. We find this the most significant covariate, which was to be expected statistically, inasmuch as the best predictor of gains was the pre-score in all cases. This result suggests that if one knew at what level a student scored on his pre-test, it would be a good predictor of how he would achieve on the post-test and further, that this factor was the single best predictor of those measured. Thus a tremendous amount of the differences among pupils can be accounted for by their pre-scores alone. Perhaps, then, this may suggest something about the universality of pre-test scores as being good predictors of post-test scores regardless of country.

Table 9

Summary of General ANOVA Findings
Covariates Omitted

Independent Variables	Dependent Variables			
	Reading Gains	Language Gains	Math Gains	Science Gains
Country	F = 51.20***	F = 85.50***	F = 4.20*	F = 12.71***
Sex	F = .56	F = 2.14	F = 2.41	No Data
Grade	F = 9.35***	F = 3.96**	F = 7.36***	F = .54
Ability	F = 7.50**	F = 26.77***	F = .38	F = .45
Country X Sex	F = 4.96*	F = 5.85*	F = 1.52	No Data
Country X Grade	F = 2.11	F = 7.07***	F =12.22***	F = .02
Country X Ability	F = 3.69	F = 21.11***	F = .02	F - 1.93
Sex X Grade	F = .21	F = 1.16	F = 1.81	No Data
Sex X Ability	F = .54	F = 5.79*	F = .65	No Data
Grade X Ability	F = 2.00	F = 1.17	F = 2.29*	F = .75
Country X Sex X Grade	F = .80	F = .62	F = .67	No Data
Country X Sex X Ability	F = .27	F = 1.02	F = 6.52**	No Data
Sex X Grade X Ability	F = 2.78	F = 2.52*	F = .40	No Data
Country X Grade X Ability	F = 1.11	F = 2.70*	F = .95	F = .03
Country X Sex X Grade X Ability	F = 5.10***	F = 1.56	F = .98	No Data

* P .05
** P .01
*** P .001

Table 10

Summary of General ANOCVA Findings
Covariates Included

Independent Variables	Dependent Variables			
	Reading Gains	Language Gains	Math Gains	Science Gains
Country	F = 14.96***	F = 25.95***	F = 10.89	F = 8.14**
Sex	F = .40	F = 13.69***	F = 7.34**	No Data
Grade	F = 10.01***	F = 24.84***	F = 6.10**	F = .01
Ability	F =119.83***	F = 40.33***	F = 73.12***	F = .10
Country x Sex	F = 2.64	F = 5.67*	F = .18	No Data
Country X Grade	F = 10.90***	F = 7.63***	F = 7.29***	F = 1.94
Country X Ability	F = 13.46***	F = .17	F = 7.22**	F = .02
Sex X Grade	F = .77	F = .66	F = 1.53	No Data
Sex X Age	F = .04	F = 6.50**	F = .21	No Data
Grade X Ability	F = 2.35*	F = .84	F = 2.50*	F = 1.12
Country X Sex X Grade	F = .59	F = .32	F = .60	No Data
Country X Sex X Ability	F = .01	F = .17	F = 1.98	No Data
Sex X Grade X Ability	F = 2.32*	F = 3.70**	F = .68	No Data
Country X Grade X Ability	F = 1.74	F = 4.82***	F = 1.04	F = .89
Country X Grade X Sex X Ability	F = 4.03**	F = 1.43	F = 1.26	No Data
All Covariates	F = 62.99***	F =136.06***	F = 73.29***	F = 33.90***
Age	F = .56	F = .24	F = 1.64	F = 1.54
Language GPA	F = 2.63	F = 31.41***	F = 9.51**	F = 3.87*
Math GPA	F = .38	F = 8.21**	F = 29.19***	F = 1.55
Science GPA	F = 5.51*	F = 8.07**	F = 5.77*	F = 18.33***
Overall GPA	F = 6.02*	F = 1.17	F = .002	F = 1.55
Pre-Score	F =364.64***	F =799.64***	F =426.33***	F =166.62***

* P .05'
** P .01
*** P .001

(a) Reading Score Gains

MEAN READING SCORE GAINS (Significant Main Effects and Interactions Only)

Table 11 presents mean score gains for Reading (significant main effects and interactions.) These values of the means are also plotted on the Figures 8, 9, and 10.

THE MAIN EFFECT OF ABILITY ON READING GAINS

Figure 8 plots the main effect of ability on Reading Gains. This figure indicates that before adjustment for covariates there was no real difference. However, following adjustment for covariates, high ability students did in fact achieve higher mean gains on the Reading Scores.

THE MAIN EFFECT OF GRADE ON READING GAINS

Figure 9 presents the main effect of Grade on Reading Gains. It may be noted that before adjustment for covariates, mean gains went down as grades got higher, so that the 7th grade students achieved more than the 12th grade student. After adjustment for covariates, the relationship becomes more mixed. It suggests again that lower grade pupils did better than higher grade pupils but there is a slight upward trend again for 10th, 11th, and 12th grades.

MAIN EFFECT OF COUNTRY ON READING GAINS

Figure 10 presents main effect of country on reading gains. It indicates that before adjustment for covariates the United Kingdom did slightly better though not quite as well as the United States.

Table 11

Mean Reading Score Gains
(Significant Main Effects and Interactions Only)

Source	Levels	Mean Gain Prior to Adjustment for Covariates	Mean Gain After Adjustment for Covariates
Country	United Kingdom	11.60	9.58
	United States	7.25	8.33
Sex	Girls		
	Boys		
Grade	7th	12.06	9.92
	8th	11.04	12.44
	9th	8.33	6.92
	10th	7.51	5.51
	11th	5.85	8.38
	12th	3.13	8.78
Ability	IQ 110	8.77	11.94
	IQ 110	8.62	5.38
Country X Sex	U.K., Girl	11.42	
	U.K., Boy	11.83	
	U.S., Girl	7.72	
	U.S., Boy	6.77	
Country X Grade	U.K., 7th		8.29
	U.K., 8th		11.94
	U.K., 9th		11.33
	U.K., 10th		4.45
	U.K., 11th		8.98
	U.K., 12th		14.97
	U.S., 7th		10.49
	U.S., 8th		12.91
	U.S., 9th		3.95
	U.S., 10th		6.29
	U.S., 11th		8.27
	U.S., 12th		7.45
Country X Ability	U.K., IQ 110		14.90
	U.K., IQ 110		6.35
	U.S., IQ 110		10.95
	U.S., IQ 110		4.54
Sex X Grade	Girl, 7th		
	Girl, 8th		
	Girl, 9th		
	Girl, 10th		
	Girl, 11th		
	Girl, 12th		
	Boy, 7th		
	Boy, 8th		
	Boy, 9th		
	Boy, 10th		
	Boy, 11th		
	Boy, 12th		

Table 11 (Continued)

Sex X Ability	Girl, IQ	110	
	Girl, IQ	110'	
	Boy, IQ	110	
	Boy, IQ	110	
Grade	7th, IQ	110	12.13
X Ability	8th, IQ	110	15.19
	9th, IQ	110	10.88
	10th, IQ	110	9.95
	11th, IQ	110	11.64
	12th, IQ	110	10.44
	7th, IQ	110	7.17
	8th, IQ	110	9.53
	9th, IQ	110	3.63
	10th, IQ	110	1.06
	11th, IQ	110	4.90
	12th, IQ	110	

Figure 8

Main Effect of ABILITY ON READING GAINS

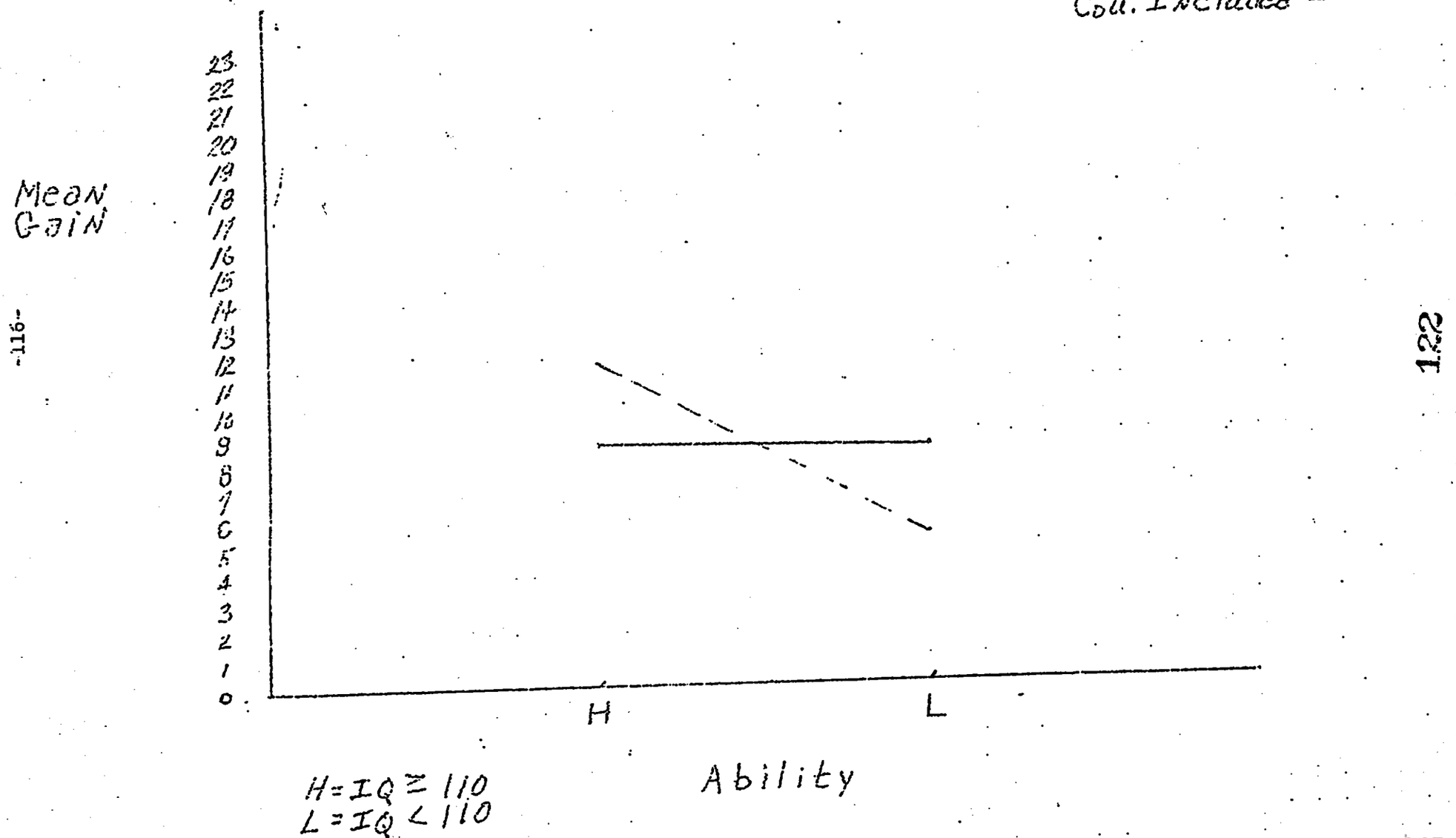


Figure 9

Main Effect of GRADE
on READING GAINS

Cou. Omitted ——
Cou. Included - - - -

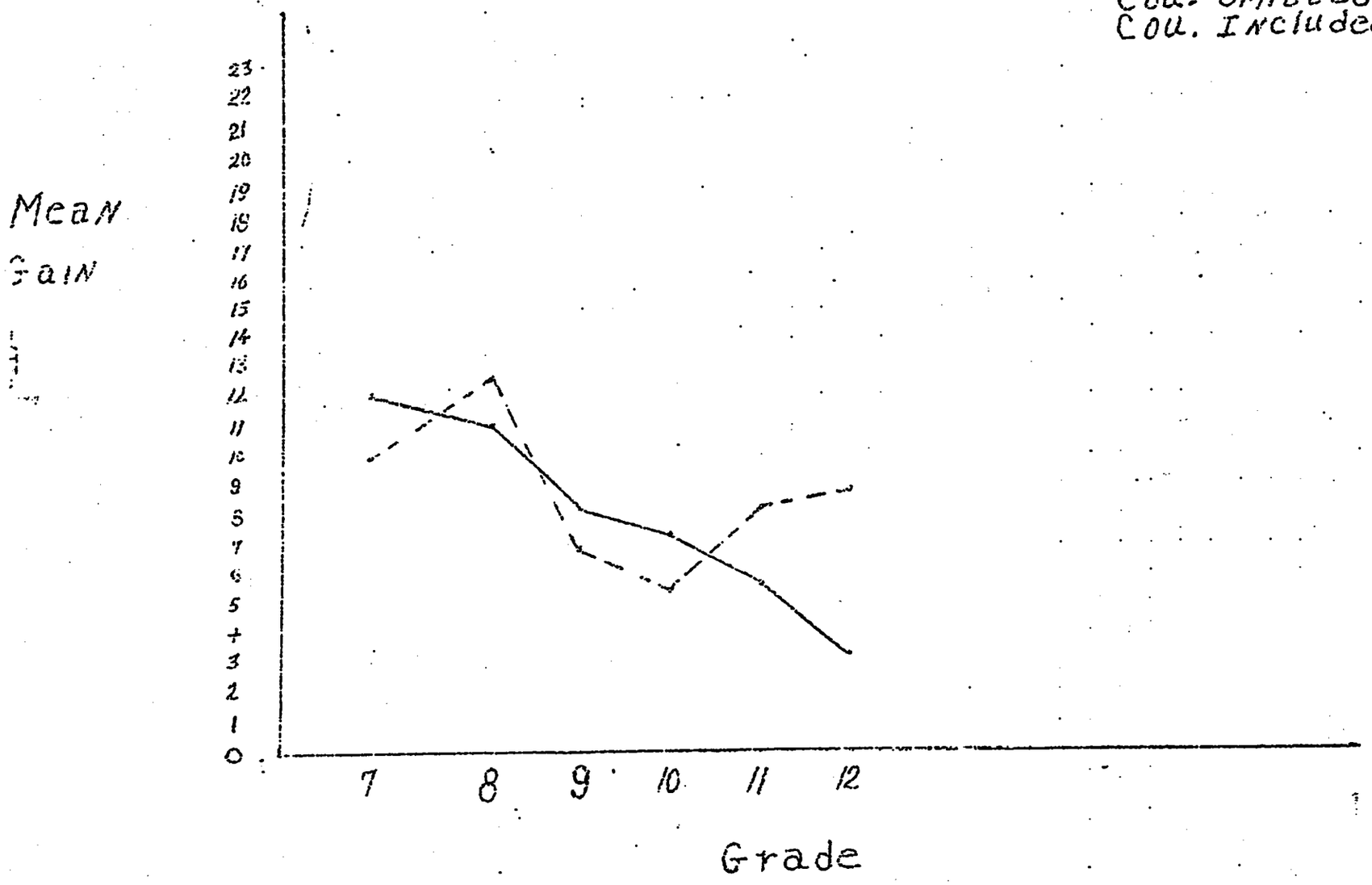
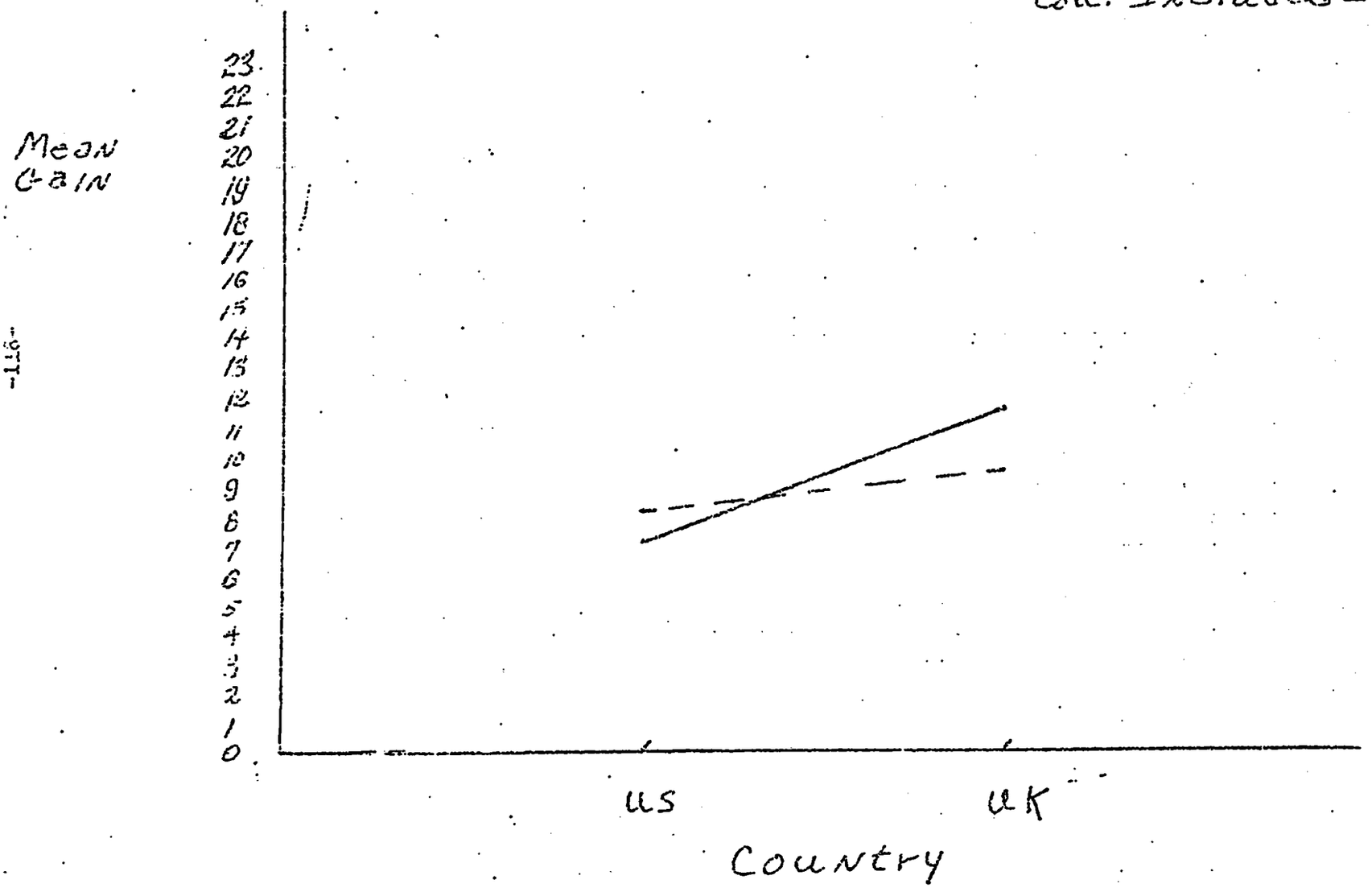


Figure 16

Main Effect of COUNTRY ON READING GAINS



(b) Language Score Gains

MEAN LANGUAGE SCORE GAINS (Significant Main Effects and Interactions Only)

Table 12 presents significant main effects and interactions only for Language Score Gains. As we examine this table, beginning with the effect of country on language gains, it indicates that before adjustment for covariates the United Kingdom did better; adter adjustment, the United States did better. Figure 11 graphically depicts these results.

MAIN EFFECT OF ABILITY ON LANGUAGE GAINS

Figure 12 examins the main effects of ability on language gains, as may be observed before adjustment for covariates, low ability students did better. After adjustment, high ability students achieved better gains.

MAIN EFFECT OF GRADE ON LANGUAGE GAINS

Figure 13 graphs the main effect of grades on language gains. We note that before adjustment for covariates (after the 9th grade) gain went down as grade went up. However, after adjustment for covariates, there is a reversal and an upward trend is indicated through the 11th grade. (A slight decrease is noted at the 12th grade level). Thus, we find a general improvement in gains as grade goes up after adjustment in covariates.

MAIN EFFECT OF COUNTRY ON LANGUAGE GAINS
INTERACTION EFFECTS OF COUNTRY AND SEX ON LANGUAGE GAINS

Figure 14 describes the combined effects of Country and Sex on Language Gains. Before adjustment for covariates is considered, one finds that the United Kingdom students did better regardless of sex, generally. After adjustment for covariates, one finds that United States girls did better than anybody else and that United States students did achieve more than United Kingdom students, generally.

INTERACTION EFFECTS OF COUNTRY BY GRADE ON LANGUAGE GAINS

Figure 15 examins the interaction effects of Country by Grade on Language Skills. Results indicate that before adjustment, the United Kingdom grades generally did better than United States grades, with the possible exception of 7th grade for United Kingdom. After adjustment for covariance, however, one finds that the situation is somewhat reversed. It may be noted

that both the United States and the United Kingdom students improve as they progress to higher grades.

EFFECTS OF SEX AND ABILITY ON LANGUAGE GAINS

The final graph (figure 16) of this section presents the interaction effects of sex and ability on Language Gains. As may be noted, following adjustments for the covariates, the results were reversed.

Table 12

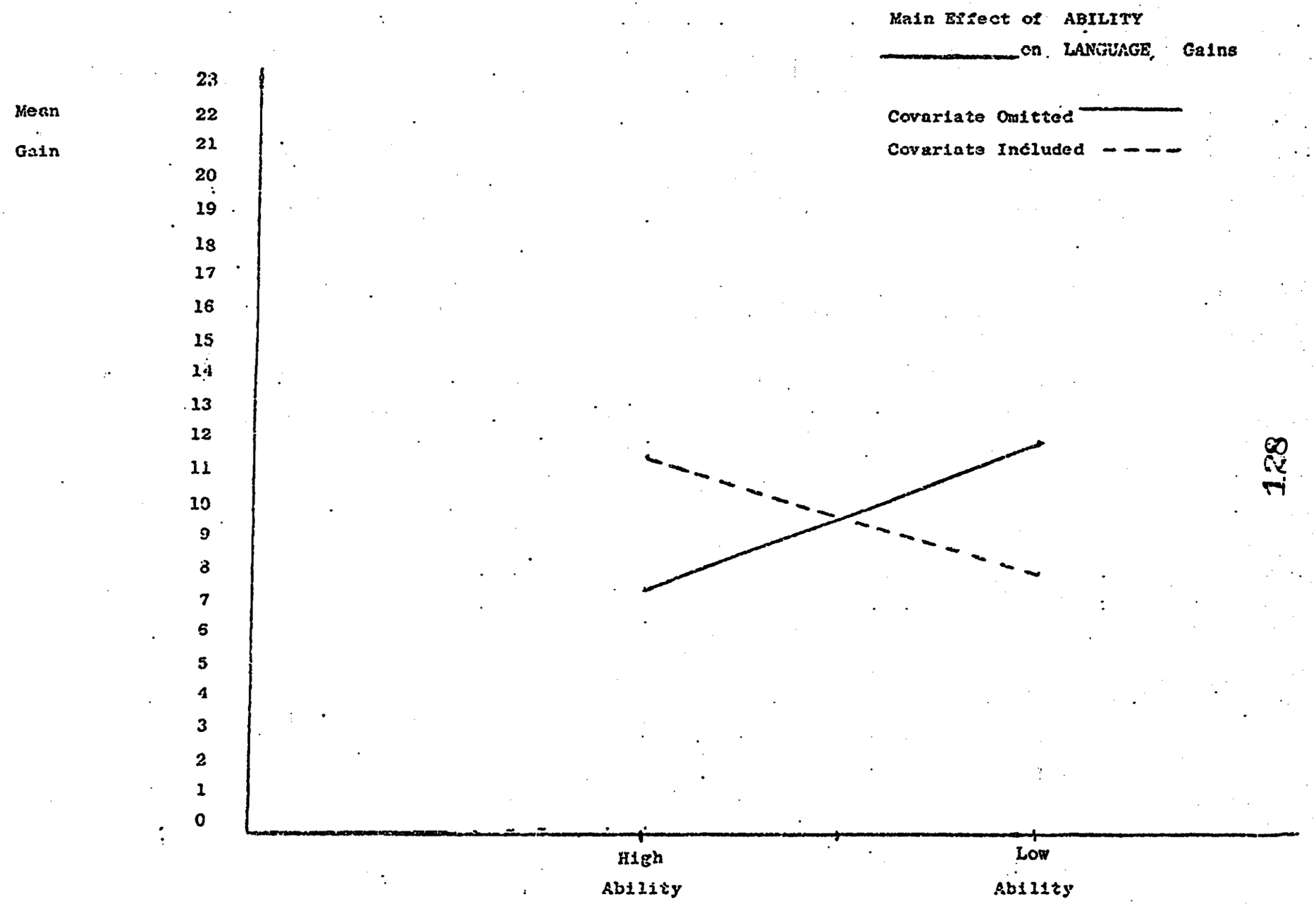
Mean Language Score Gains
(Significant Main Effects and Interactions Only)

Source	Levels	Main Gain Prior to Adjustment for Covariates	Main Gain After Adjustment for Covariates
Country	United Kingdom	14.30	6.99
	United States	7.28	11.50
Sex	Girls		
	Boys		
Grade	7th	10.51	3.06
	8th	10.16	4.20
	9th	12.08	11.62
	10th	9.88	12.87
	11th	7.33	18.48
	12th	4.66	17.01
Ability	IQ 110	7.69	11.76
	IQ 110	11.89	7.89
Country and Sex	U.K., Girl	14.03	7.61
	U.K., Boy	14.67	6.15
	U.S., Girl	7.56	13.21
	U.S., Boy	6.98	9.64
Country and Grade	U.K., 7th	8.37	1.51
	U.K., 8th	15.19	4.41
	U.K., 9th	15.45	6.80
	U.K., 10th	15.18	11.29
	U.K., 11th	14.84	14.09
	U.K., 12th	6.12	13.49
	U.S., 7th	10.26	3.57
	U.S., 8th	4.65	3.96
	U.S., 9th	9.86	14.79
	U.S., 10th	6.07	14.01
	U.S., 11th	5.98	19.27
	U.S., 12th	4.35	17.75

Table 12 (Continued)

Country and Ability	U.K., IQ 110	9.26	
	U.K., IQ 110	17.35	
	U.S., IQ 110	7.16	
	U.S., IQ 110	7.92	
Sex and Grade	Girl, 7th		
	Girl, 8th		
	Girl, 9th		
	Girl, 10th		
	Girl, 11th		
	Girl, 12th		
	Boy, 7th		
	Boy, 8th		
	Boy, 9th		
	Boy, 10th		
	Boy, 11th		
	Boy, 12th		
Sex and Ability	Girl, IQ 110	7.42	12.19
	Girl, IQ 110	10.56	8.18
	Boy, IQ 110	8.04	11.22
	Boy, IQ 110	14.19	7.63
Grade and ABility	7th, IQ 110		
	8th, IQ 110		
	9th, IQ 110		
	10th, IQ 110		
	11th, IQ 110		
	12th, IQ 110		
	7th, IQ 110		
	8th, IQ 110		
	9th, IQ 110		
	10th, IQ 110		
	11th, IQ 110		
	12th, IQ 110		

Figure 11


Main Effect of ABILITY
on LANGUAGE Gains
Covariate Omitted
Covariate Included
Mean
Gain
23
22
21
20
19
18
17
16
15
14
13
12
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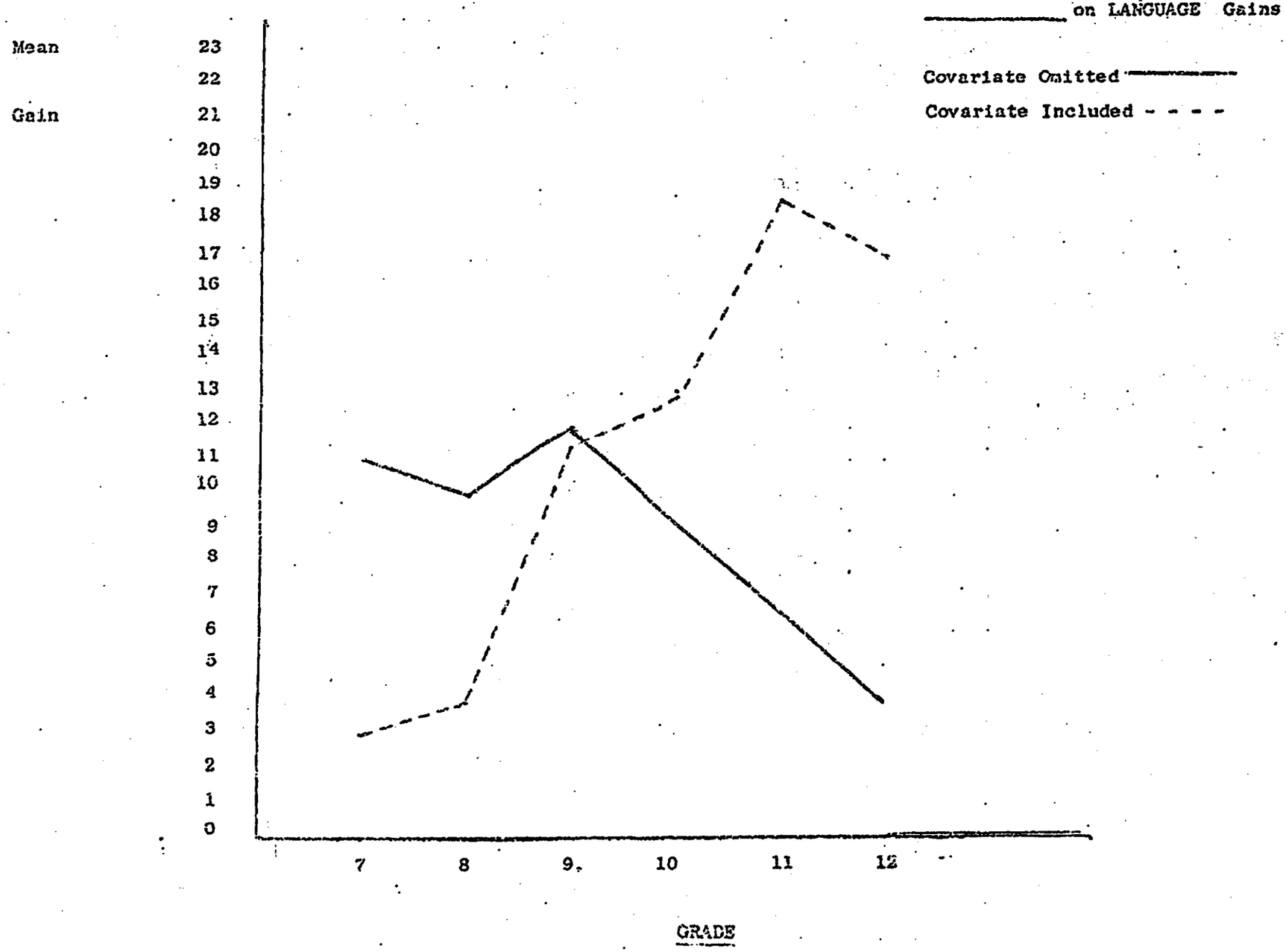
High
Ability
Low
Ability
ABILITY

Figure 12


Main Effect of GRADE
on LANGUAGE Gains
Covariate Omitted
Covariate Included
Mean
Gain
23
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10
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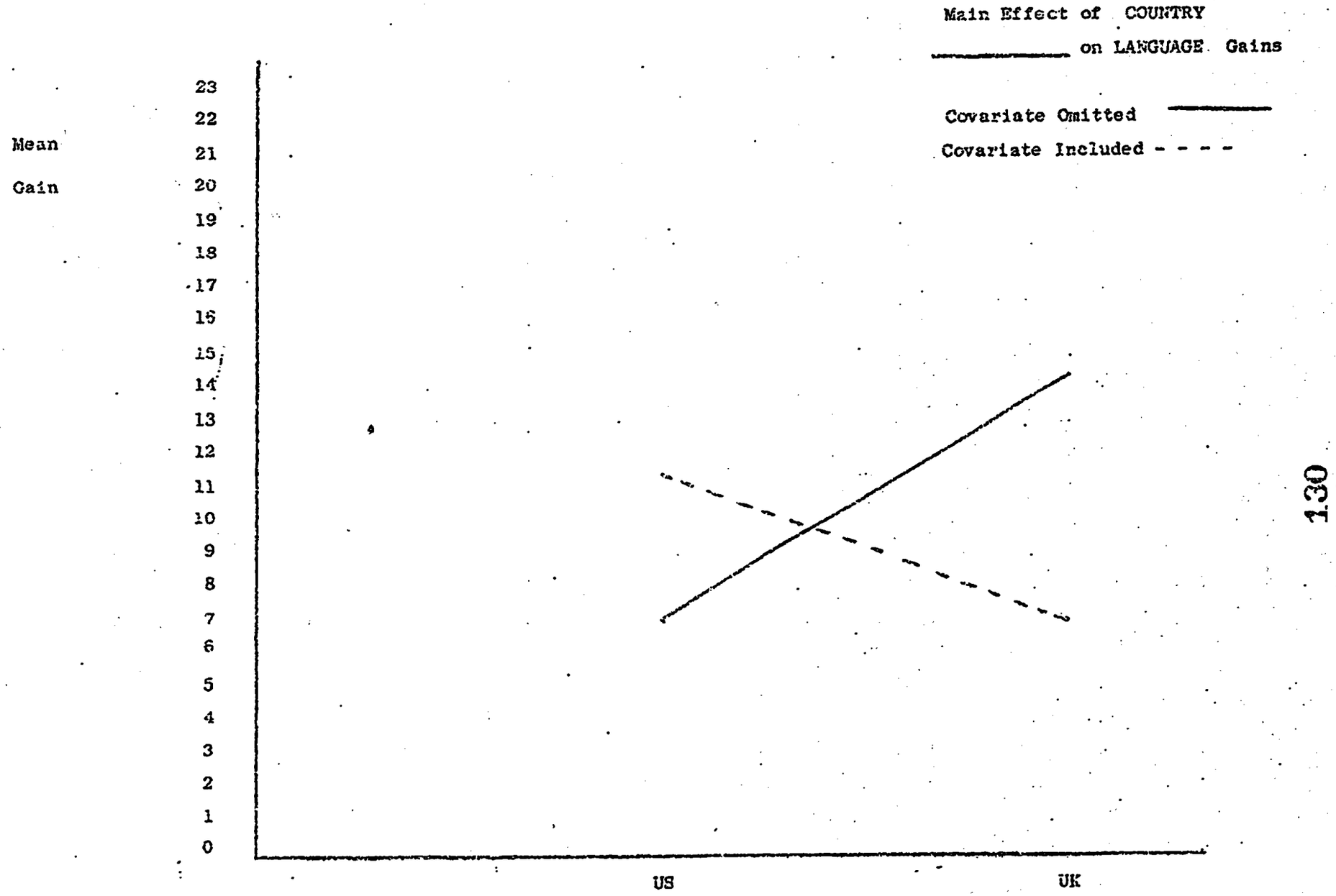
12
GRADE

Figure 13


Main Effect of COUNTRY
on LANGUAGE Gains
Covariate Omitted
Covariate Included
Mean
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23
22
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1
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US
UK

Interaction Effect of COUNTRY
SEX on LANGUAGE Gains

Covariate Omitted ————
Covariate Included - - - - -

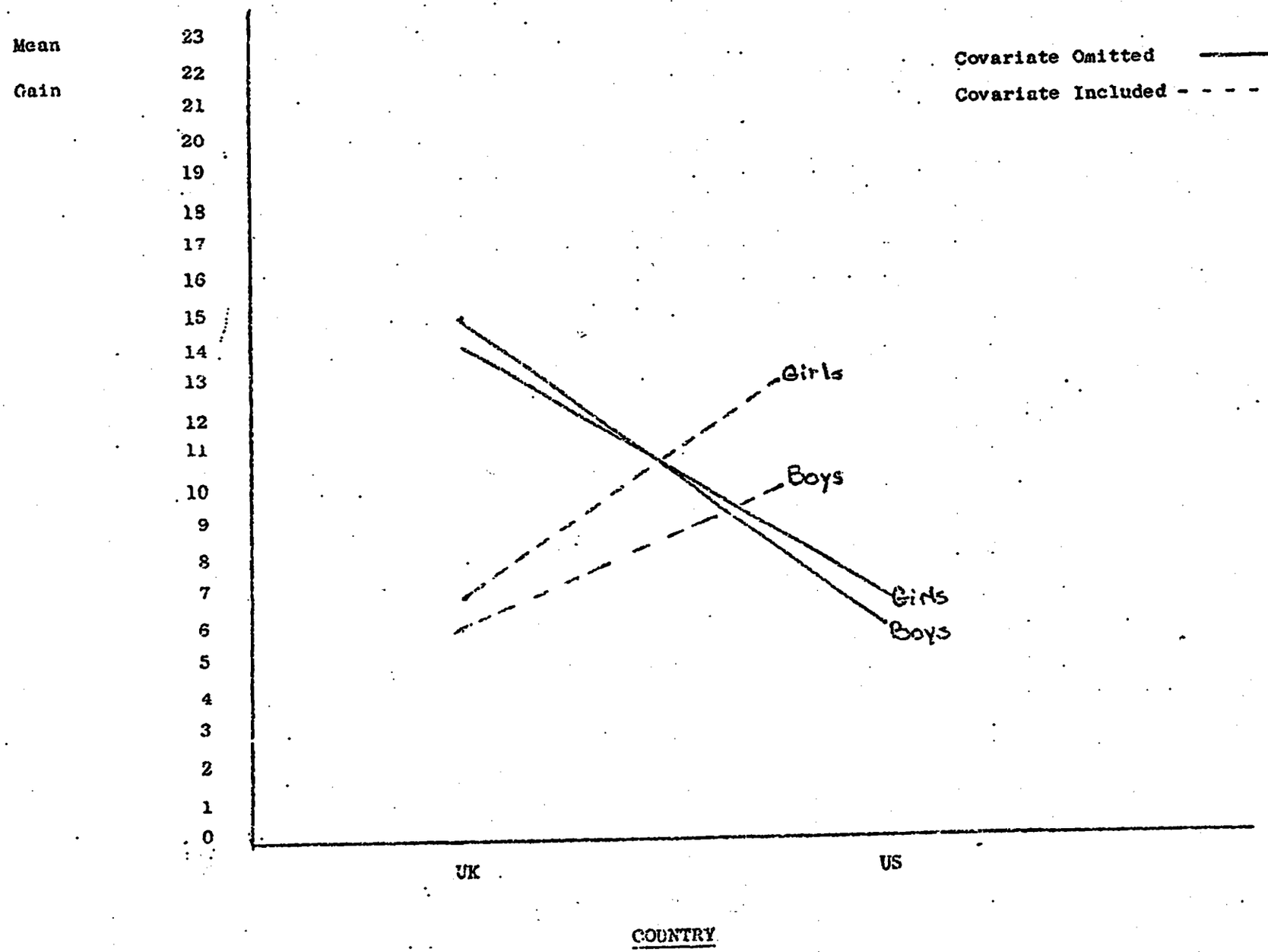
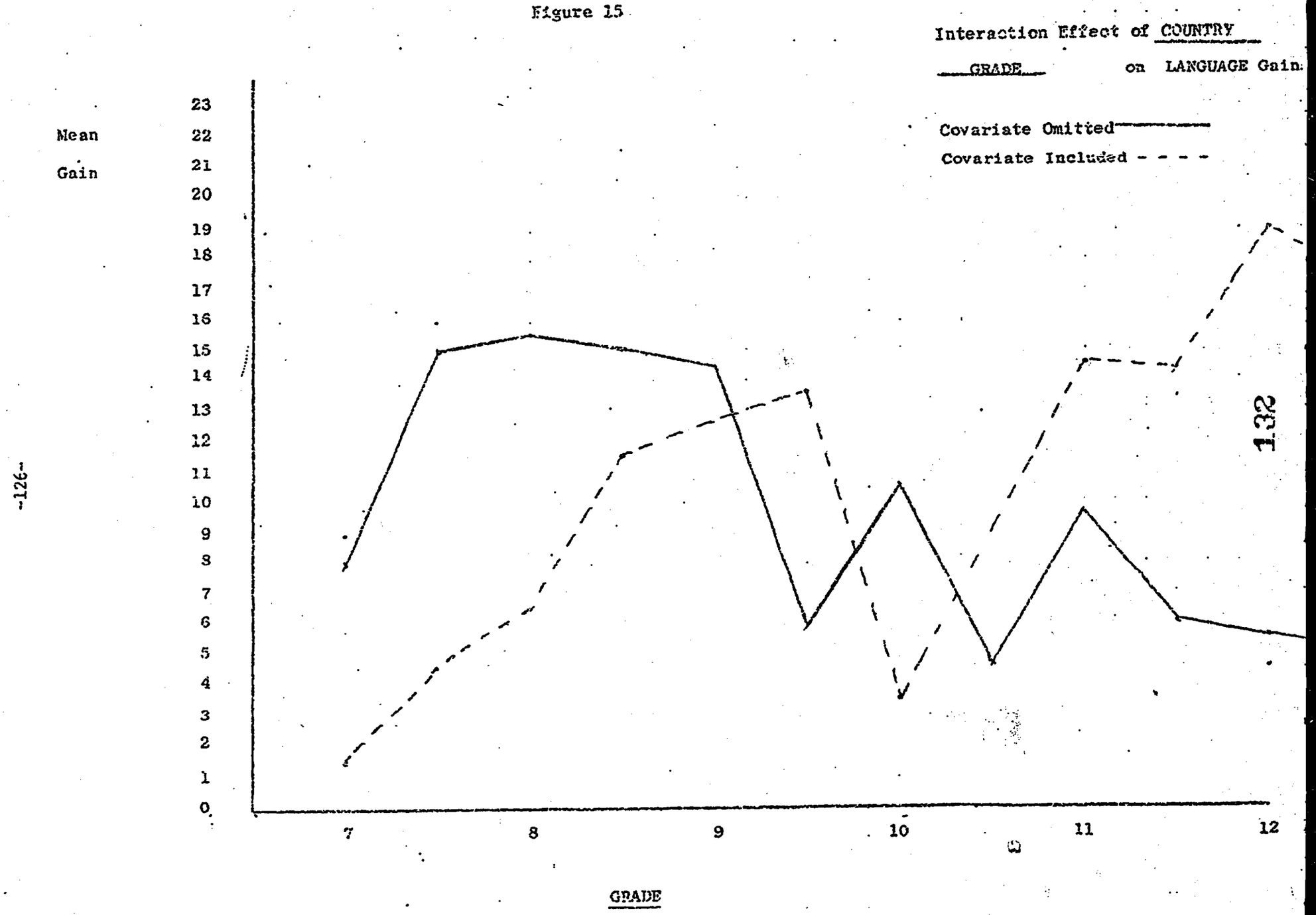


Figure 15


Interaction Effect of COUNTRY
GRADE on LANGUAGE Gain
Covariate Omitted
Covariate Included
Mean Gain
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
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7
6
5
4
3
2
1
0
7
8
9
10
11
12
GRADE
1.32

Figure 16

Interaction Effect of SEX
ABILITY on LANGUAGE Gains

Covariate Omitted ————
Covariate Included - - - -

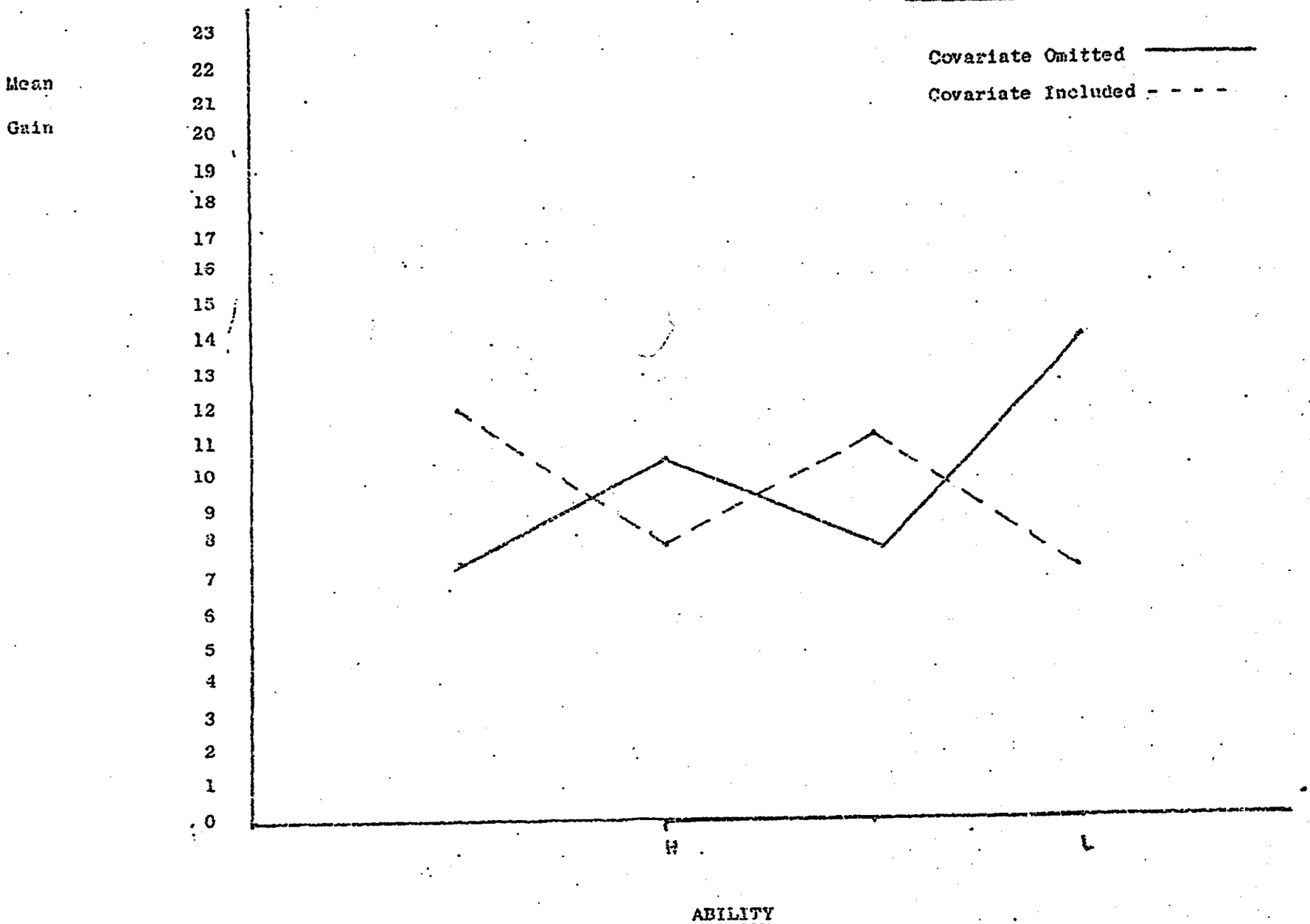

Table 13

Mean Math Score Gains
(Significant Main Effects and Interactions Only)

Source	Levels	Mean Gain Prior to Adjustment for Covariates	Mean Gain After Adjustment for for Covariates
Country	United Kingdom	12.13	9.11
	United States	9.66	12.75
Sex	Girls		9.20
	Boys		11.64
Grade	7th	9.80	8.66
	8th	13.91	10.82
	9th	10.78	10.93
	10th	10.71	10.40
	11th	12.10	14.25
	12th	6.11	11.85
Ability	IQ 110		13.69
	IQ 110		7.69
Country and Sex	U.K., Girl		
	U.K., Boy		
	U.S., Girl		
	U.S., Boy		
Country and Grade	U.K., 7th	10.68	4.83
	U.K., 8th	13.56	7.14
	U.K., 9th	10.17	9.86
	U.K., 10th	11.68	8.77
	U.K., 11th	17.80	15.94
	U.K., 12th	9.55	13.85
	U.S., 7th	8.83	12.89
	U.S., 8th	14.33	15.25
	U.S., 9th	11.53	12.25
	U.S., 10th	6.80	12.13
	U.S., 11th	5.76	12.36
	U.S., 12th	2.60	9.80
Country and Ability	U.K., IQ 110		12.71
	U.K., IQ 110		4.99
	U.S., IQ 110		14.85
	U.S., IQ 110		10.60
Sex and Grade	Girl, 7th		
	Girl, 8th		
	Girl, 9th		
	Girl, 10th		
	Girl, 11th		
	Girl, 12th		
	Boy, 7th		
	Boy, 8th		
	Boy, 9th		
	Boy, 10th		
	Boy, 11th		
	Boy, 12th		

Table 13, Continued

Sex and Ability	Girl, IQ	110		
	Girl, IQ	110		
	Boy, IQ	110		
	Boy, IQ	110		
Grade and ABility	7th, IQ	110	5.56	11.51
	8th, IQ	110	14.49	20.87
	9th, IQ	110	12.51	15.83
	10th, IQ	110	11.16	14.08
	11th, IQ	110	13.05	18.63
	12th, IQ	110	3.34	12.00
	7th, IQ	110	8.38	5.16
	8th, IQ	110	13.31	9.72
	9th, IQ	110	9.32	6.79
	10th, IQ	110	10.25	6.58
	11th, IQ	110	11.04	9.37
	12th, IQ	110	10.86	11.59

(c) Math Score Gains

MATH SCORE GAINS (Significant Main Effects & Interactions Only)

Table 12 presents mean math score gains (significant mean effects and interactions only).

MAIN EFFECT OF GRADE ON MATH GAINS

Figure 17 depicts the main effect of grade on math gains. Before adjustment for covariates varied gains by grades are noted with 8th graders doing best of all and 12th graders showing the least gain. After adjustment for covariates, however, a steady increase in gains from 7th to 11th grade is indicated, with a slight drop in the 12th grade.

MAIN EFFECT OF COUNTRY ON MATH GAINS

Figure 18 presents the main effect of country on math gains. As may be observed before adjustment for covariates, United Kingdom pupils scored higher gains. After adjustment, United States pupils showed the biggest gains.

INTERACTION EFFECTS OF COUNTRY BY GRADE ON MATH GAINS

The interaction effect of country by grade on math gains is present in figure 19. Before adjustment for covariates, no clear trends may be noted. Following adjustment, there is more of a trend towards increased gains by grade levels, through the 11th grade, in the British Isles. The United States gains remain irregular.

INTERACTION EFFECTS OF GRADE BY ABILITY ON MATH GAINS

In examining the interaction effects of grade by ability on math gains in figure 20, it may be noted that high ability students in the 8th grade achieved better than at other grade levels, both before and after adjustment for covariates. The gains for high ability students were consistent by grade levels both before and after adjustment for covariates.

The same consistency may be noted in examining gains for low ability students both before and after adjustment for covariates. Again, the best gains were achieved by 8th graders. The second best gains were achieved by 11th graders for before adjustment and by 12th graders after adjustment.

Figure 17

Main Effect of GRADE ON MATH GAINS

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Cou. Included - - - -

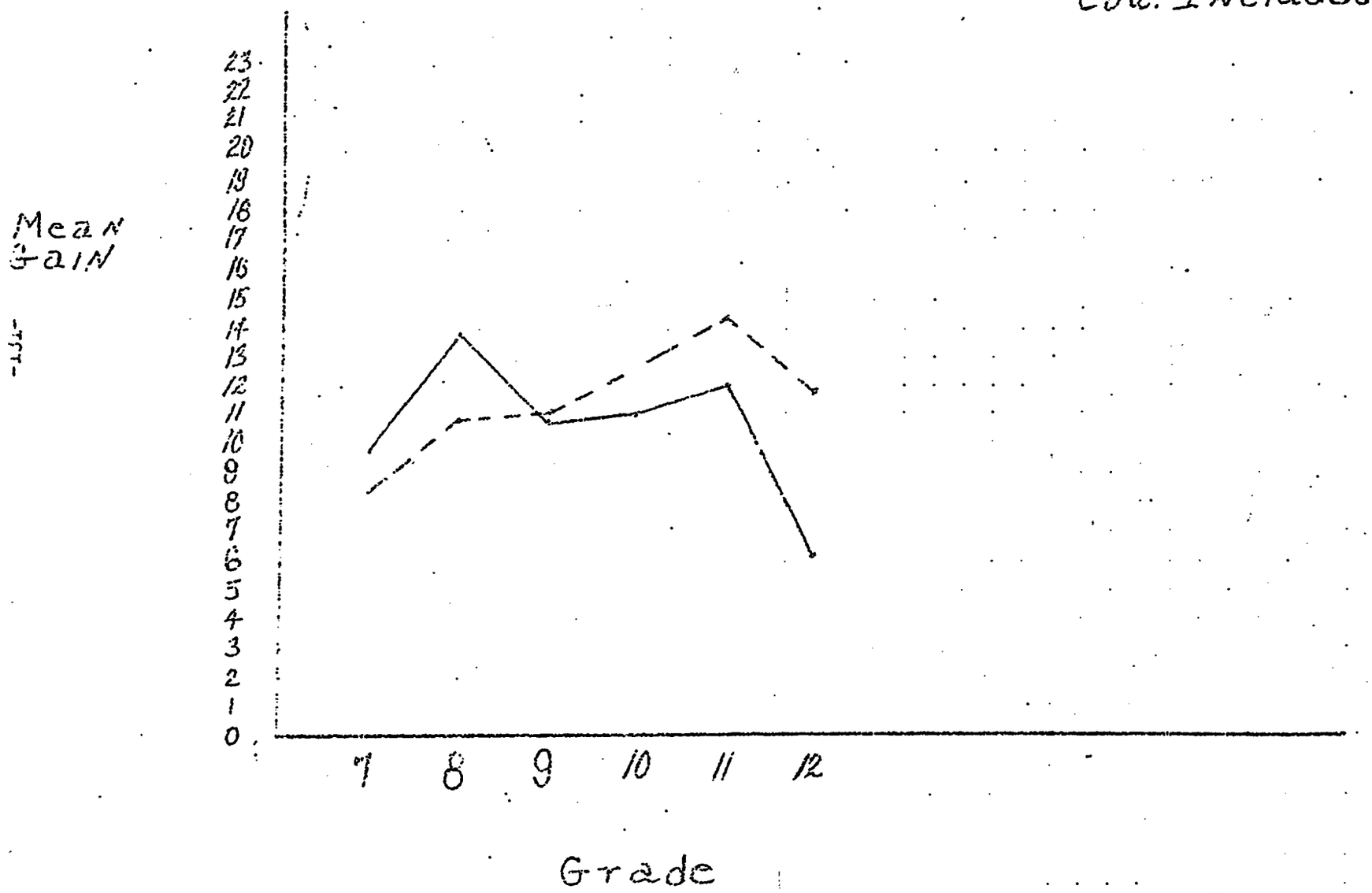


Figure 18

Main Effect of COUNTRY ON MATH GAINS

Cou. Omitted ——————
Cou. Included - - - -

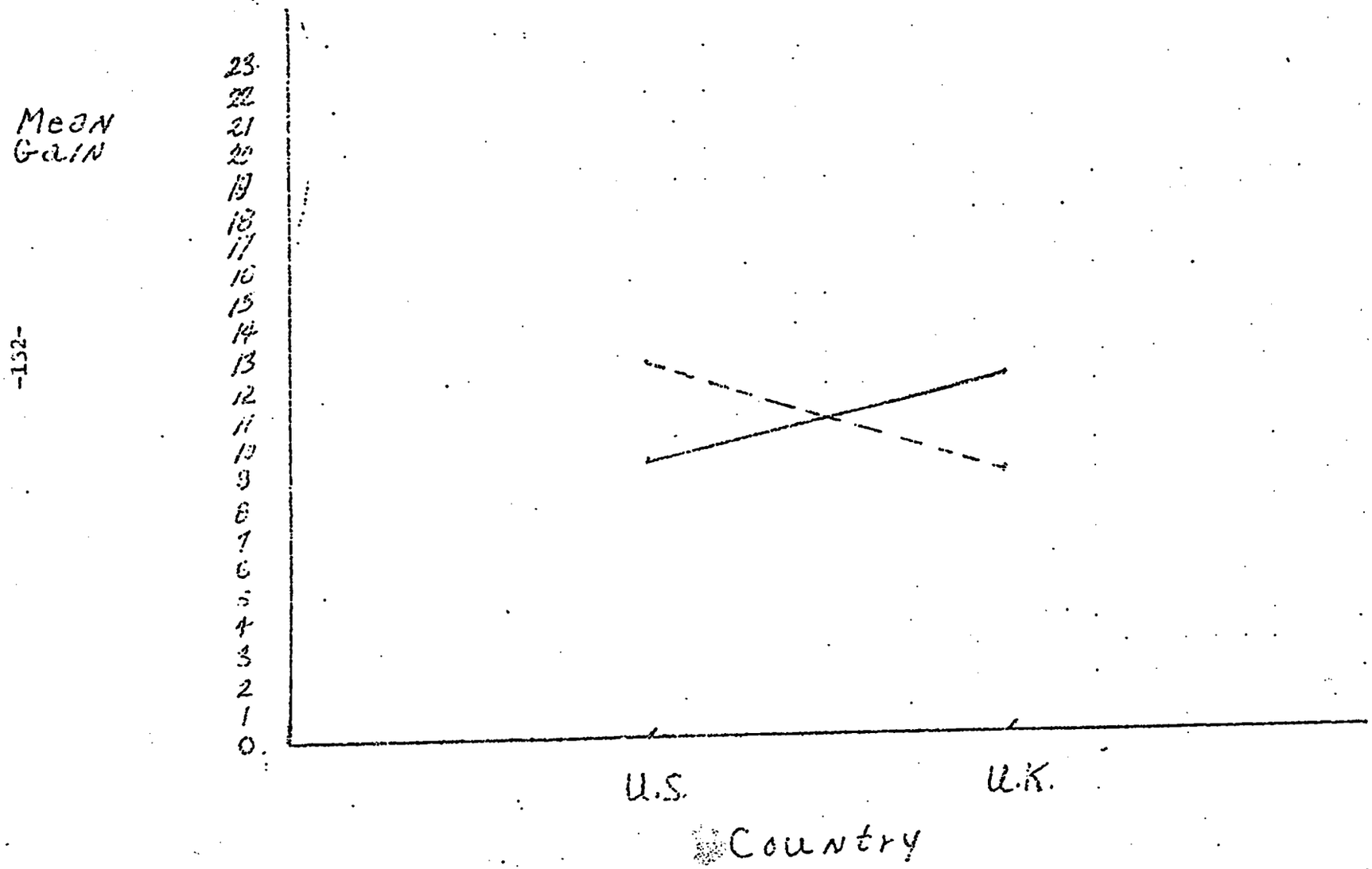


Figure 19

Interaction Effect of COUNTRY GRADE on MATH GAINS

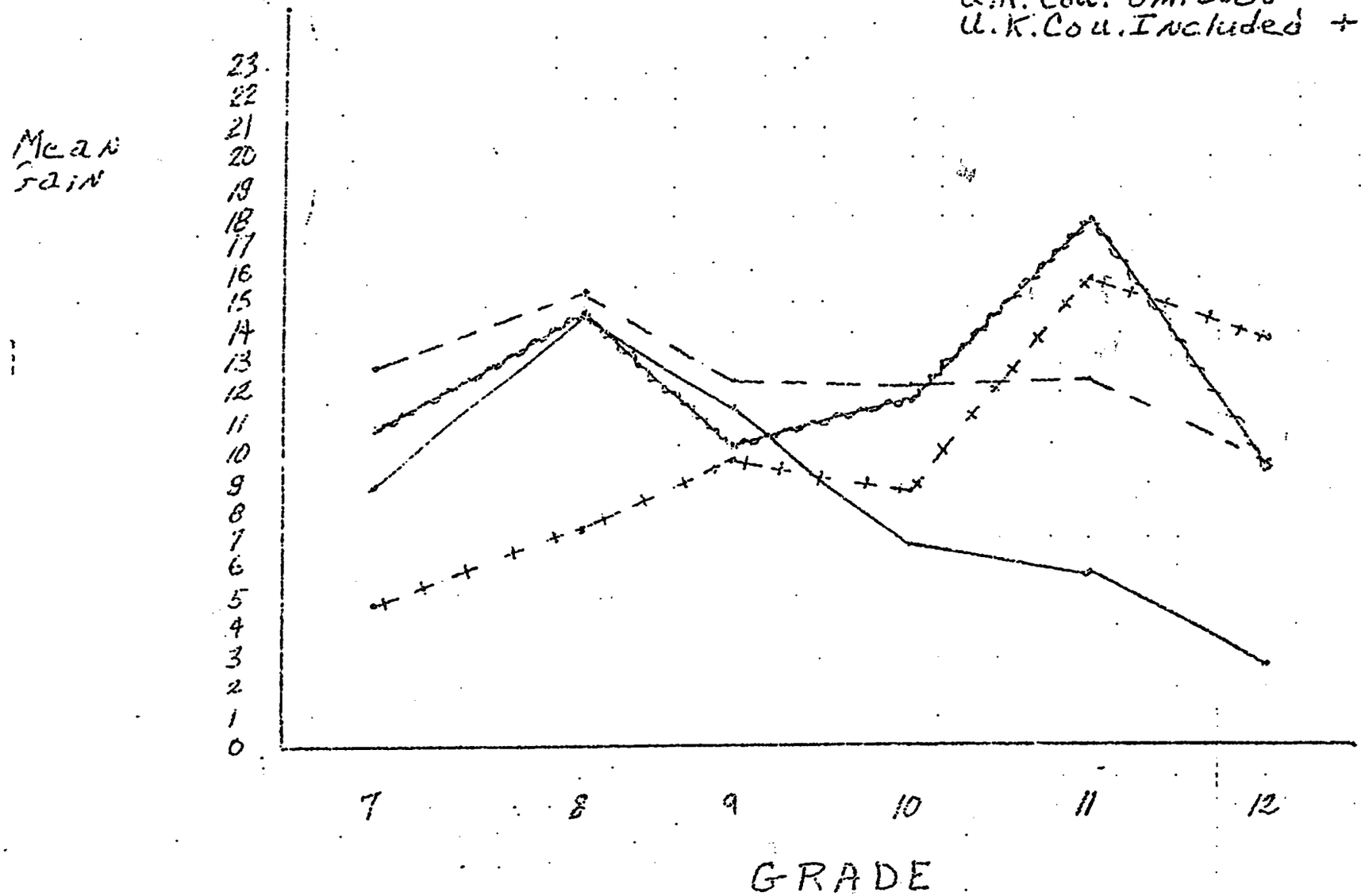
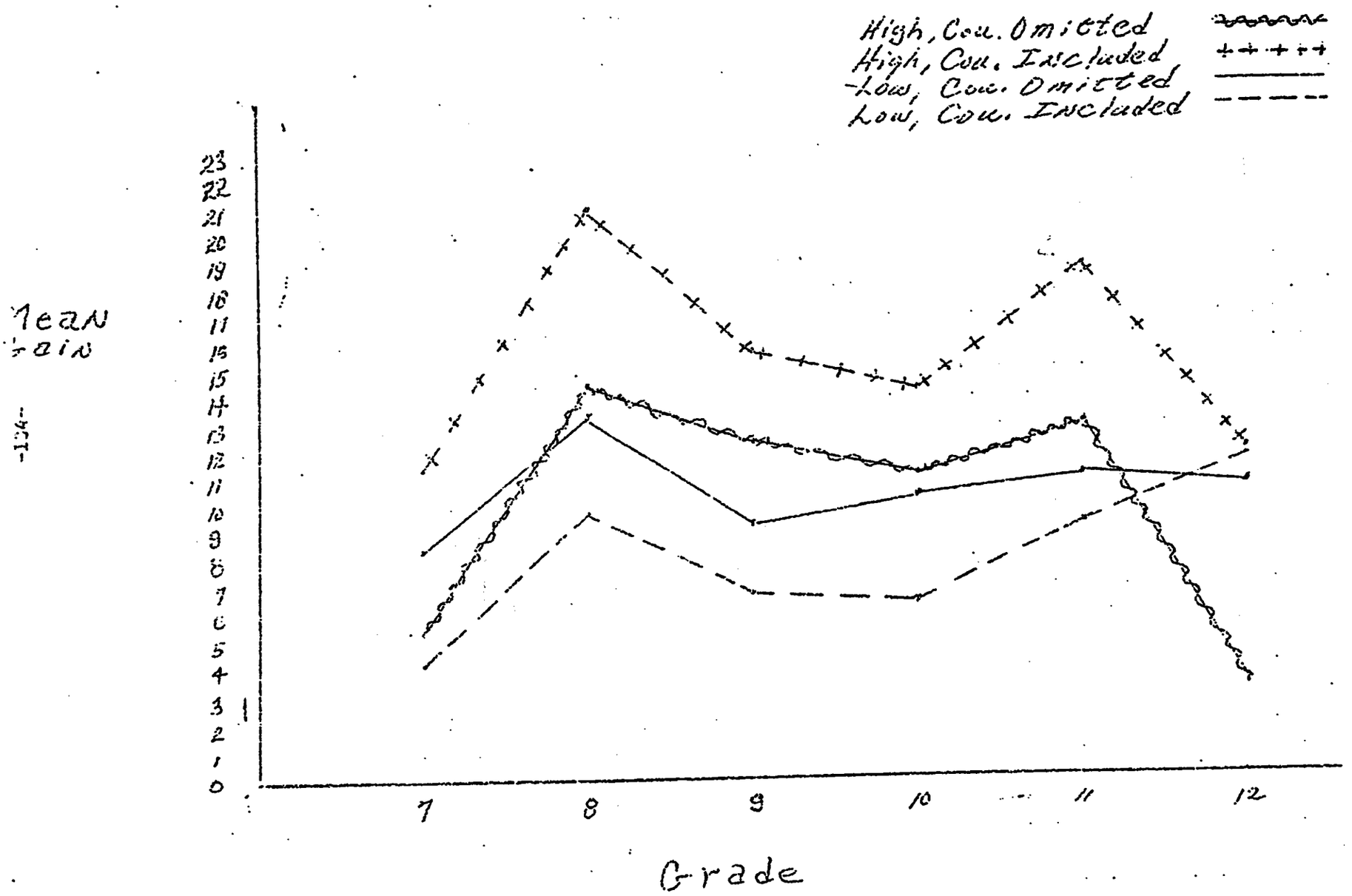


Figure 20

Interaction Effect of GRADE
ABILITY on MATH Gains



ANALYSIS OF VARIANCE SUMMARY TABLE

The pupil questionnaire contained questions which sought to identify certain psychological-sociological factors which might influence pupil achievement. These were as follows:

Factor 11: "Which one of the following is most important for you at school?"
- a. Pleasing your parents
- b. Learning as much as possible at school
- c. Living up to religious or ethical ideals
- d. Being accepted and liked by other students

Factor 13: "How close do you feel to this community?"
- a. I feel that I belong here and that this is my home
- b. I feel quite close to this community, but I do not consider it my home
- c. I do not feel very close to this community

Factor 16: "How far removed are you from the center of things going on in your school?" (Students were asked to respond by indicating the appropriate number on a six-circle bull's eye design.)

Factor 18: "Which one of the following is most important for a boy to be admired by the pupils of this school?"
- a. Coming from the right family
- b. Having high grades, a good student
- c. Being an athletic star
- d. Being in the "right" crowd, the leading boys
- e. Having nice clothes or a nice car
- f. Being a leader in school activities
- g. Being popular with girls

Factor 20: "Which one of the following is most important for a girl to be admired by the pupils at this school?"
- a. Coming from the right family
- b. Having high grades, a good student
- c. Being an athletic star
- d. Being in the "right" crowd, the leading girls
- e. Having nice clothes or a nice car
- f. Being a leader in school activities
- g. Being popular with boys

Table 13 presents an Analysis of Variance Summary Table in which the significance of these factors for reading, language and math gains are presented. For Reading Gains, it generally made little difference how students responded to the psychological-sociological items, with the exception of the question "How far removed are you from the center of things going on in your school?" and the question "Which one of the following is most important for a girl to

be admired by the pupils at this school?", which were both significant at the .01 level. In general, what Table 13 indicates is that the psychological-sociological questions really didn't make a lot of difference in pupil gain scores with a few minor exceptions compared with the effects of the covariates and of Country itself, which was consistently significant.

In examining Language Gains, however, a different pattern appears, suggesting that Country is no longer significant when compared to these psychological-sociological factors. An implication of these findings may be that psychological-sociological influences are more readily exposed through Language, than, for example, reading and math.

The effects of psychological factors on math gains, are, as may be noted, similar to language gains. In effect, they are of no significance.

Table 14

Analysis of Covariance Summary Table

Psychological Factor Used

		Most Important	Community Closeness	Circle	Boy Admired	Girl Admired
READING	Country	F = 13.81***	F = 39.13***	F = 38.32***	F = 34.08***	F = 21.42***
	(factor)	F = 1.38	F = 2.81	F = 3.15**	F = 1.90	F = 3.26**
	Country X(fact)	F = 1.78	F = .03	F = 5.73***	F = .83	F = 1.64
	All Covariates	F =133.64***	F =138.69***	F =140.03***	F =117.11***	F =130.01***
	Age	F = 69.64***	F = 68.74***	F = 59.37***	F = 57.07***	F = 62.98***
	Pre-test	F =173.77***	F =183.70***	F =191.01***	F =161.81***	F =179.44***
LANGUAGE	Country	F = .42	F = .36	F = .17	F = 1.69	F = .70
	(factor)	F = 4.15**	F = 6.06**	F = 4.43***	F = 1.96	F = 2.98***
	Country X (fact)	F = .72	F = .31	F = 2.19	F = 3.99***	F = 2.11*
	All Covariates	F =447.85***	F =432.31***	F =457.36***	F =378.29***	F =410.16***
	Age	F =114.86***	F =107.98***	F =111.94***	F = 80.77***	F = 85.94***
	Pre-test	F =867.53***	F =831.55***	F =877.50***	F =730.21***	F =789.71***
MATHAINS	Country	F = 10.15***	F = 26.85***	F = 19.22***	F = 15.78***	F = 4.49**
	(factor)	F = 2.47	F = 1.97	F = 121	F = 2.47*	F = 1.55
	Country X (Fact)	F = .25	F = .64	F = 1.95	F = 2.20*	F = .93
	All Covariates	F =248.52***	F =247.39***	F =232.40***	F =212.71***	F =223.21***
	Age	F = 38.85***	F = 37.01***	F = 28.92***	F = 22.97***	F = 36.61***
	Pre-test	F =265.96***	F =265.64***	F =257.37***	F =257.77***	F =245.90***

* P .05
** P .02
*** P .001

3. Summary of Mean Achievement Scores

Tables 14, 15, 16, and 17 present summaries of mean pupil achievement by grade and ability levels for the subject-matter areas of reading, language, math and science respectively. In each subject-matter area of the California Achievement Test, the sub-test scores have been combined to present a total "rights" score. These scores represent year and achievement levels for their respective grade levels. Inasmuch as there was no significant difference between public and private school pupils in either the United States or the United Kingdom, these categories have been collapsed into one.

As previously indicated, test items considered to be noticeably biased towards the United States sample were eliminated prior to the final scoring. This, however, should not be interpreted as an indication that the California Achievement Test series as modified was completely impartial to either the British or American sample. In fact, it is the opinion of the project staff that the California Achievement Test series developed and normed in this country would even after obvious eliminations, still maintain a bias somewhat favorable to the American sample. This probable bias should be kept in mind as one interprets the results.

Table 14 presents total reading achievements in all categories, grades 7-12. An examination of this table indicates consistent gains in reading ability levels at all grades across all ability levels in both countries with minor exceptions, especially in the U.S. low-ability group. British high ability students consistently scored higher at all grade levels except the 8th. On the other hand, U.S. average and low ability students with the exception of the 9th grade average ability group scored higher than their British counterparts.

Table 15 presents total language achievements in all categories, grades 7-12. As may be noted in this table, there is again a consistent gain in achievement across country and ability levels from grades 7-12, with the exception of British low-ability 12th graders. With the exception of 12th grade high ability students, the U.S. students scored higher at each grade level by ability levels. The 12th grade high ability U.S. and U.K. groups achieved at almost exactly the same level.

Table 16 presents total mathematics achievement in all categories, grades 7-12. In general this table also reflects consistent gains in

Table 15

Mean Reading Achievement Scores
by Country, Grade and Ability Levels (CAT)

Grade	High Ability U.S.	High Ability U.K.	Average Ability U.S.	Average Ability U.K.	Low Ability U.S.	Low Ability U.K.
12	112.35	120.76	89.66	87.94	72.80	60.00
11	110.07	113.98	85.64	78.95	91.12	52.00
10	100.28	106.96	72.85	65.02	49.18	42.35
9	95.33	105.07	64.68	65.46	50.75	39.77
8	88.56	86.24	65.16	57.41	53.81	34.65
7	76.07	78.35	50.81	48.58	42.77	29.88

Table 16

Mean Language Achievement Scores
by Country, Grade and Ability Levels (CAT)

Grade	High Ability U.S.	High Ability U.K.	Average Ability U.S.	Average Ability U.K.	Low Ability U.S.	Low Ability U.K.
12	151.93	151.37	129.11	117.05	114.60	63.00
11	144.28	139.47	128.38	104.92	112.40	67.66
10	136.55	132.97	113.46	94.31	87.79	67.27
9	133.24	107.41	107.08	86.96	89.23	61.36
8	109.92	104.88	97.29	81.24	81.35	55.71
7	102.23	92.11	86.25	74.99	63.73	53.41

Table 17

Mean Math Achievement Scores
by Country, Grade and Ability Levels (CAT)

Grade	High Ability U.S.	High Ability U.K.	Average Ability U.S.	Average Ability U.K.	Low Ability U.S.	Low Ability U.K.
12	118.46	121.80	99.45	98.43	81.28	53.00
11	121.40	120.82	99.36	80.87	82.13	43.50
10	111.82	107.34	89.92	74.78	65.22	35.46
9	108.74	106.05	87.52	73.00	66.20	42.75
8	107.56	97.02	87.85	72.73	60.88	37.08
7	91.47	89.32	71.14	60.26	46.33	33.30

Table 18

Mean Science Achievement Scores
by Country, Grade and Ability Levels (CAT)

Grade	High Ability U.S.	High Ability U.K.	Average Ability U.S.	Average Ability U.K.	Low Ability U.S.	Low Ability U.K.
9	49.88-	49.80-	33.17	30.80	24.39	28.00
8	45.90	38.60	30.64	29.10	21.52	27.75
7	31.39	29.75	27.25	22.66	19.25	21.00

achievement across all ability levels as one progresses from 7th through 12th grade, with the exception of U.S. 11th grade pupils of high and low abilities and United Kingdom 9th grade pupils of low ability.

Table 17 presents science achievement scores for grades 7 through 9. Because of variations in science subjects by levels no comparisons are presented for grades 10 through 12. As may be noted in table , science is the only subject matter area in which the U.K. low-ability sample outachieved the U.S. sample in this catagory. The U.S. average group scored slightly higher than their U.K. counterparts, while the same could be said for the U.S. high ability group until the 9th grade where mean scored for both groups were seperated by only .08.

4. The Project Sample

Any interpretation of these and other reported results of this study must consider the sizes of the samples involved. While approximately 8,616 students were involved in all project testing, only 4,420 are represented in the analysis of the data. Of the total N, 469 students were represented in pilot testings while an additional N of 2,727 were eliminated because of inaccurate identification, failure to complete all tests or other short comings. The preceding tables in this chapter then represent a sample breakdown as follows:

High Ability		Average Ability		Low Ability	
U.S.	U.K.	U.S.	U.K.	U.S.	U.K.
195	66	167	28	14	8
218	89	187	52	16	12
252	187	167	138	24	18
244	139	173	156	41	19
218	172	161	198	28	45
330	164	191	157	43	20
1452	817	1036	729	166	122

Total N = all catagories U.S. = 2652
U.K. = 1668

Total Sample = 4420

As may be noted, the high ability sample was almost always larger than the average ability sample which in turn was always larger than the low ability sample. In fact, the latter while never sizable, diminished to an almost negligible number at the 11th and 12th grade levels.

As may be noted in an examination of Table 18, the United Kingdom high ability students showed higher mean attainment on the project language test than the United States high ability sample at all grade levels except eight and ten. However, the U.S. average ability students were higher at all grade levels (although grade 11 was essentially the same).

On the project mathematics test the results, as may be noted in Table 19, suggest that United States high ability students achieved higher in grades 9, 10, 11; whereas the United Kingdom high ability students achieved higher in grades 7 and 8. The United States average ability students achieved higher than their U.K. counterparts at all the grade levels tested (7-11).

The project developed mathematics test was not administered to grade 12. In both the project language and mathematics tests, there were occasions when mean attainments apparently regressed between grade levels. This in all probability was due to the lack of refinement of the instruments themselves.

In comparing the measured attainment of British and American students on the California Achievement Test series and the project-developed tests, it may be noted that the U.S. average ability students achieved at a higher level on both the California Achievement Tests and the project-developed tests; however, the difference was less marked on the project series. With the high ability student groups, however, there were several inconsistencies between the California Achievement Test series and the project-developed tests. These indicated higher level of attainment on the project-developed test for the United Kingdom sample for 7th and 8th grade mathematics and 7th, 9th, 11th and 12th grade language. A conclusion which might be drawn from examining the results of both the California Achievement Test and the project-developed tests would seem to suggest that U.S. average ability students in the project sample did consistently, though not dramatically, achieve at a higher level in the subject-matter areas under investigation.

It may also be concluded that the U.S. high ability students achieved at higher levels in mathematics in grades 9, 10, 11, but the British high ability sample achieved at a higher level at the final 12th grade testing. A comparison of results on the two language tests reveals contrasting results i.e., the U.S. consistently higher on the California Achievement Test series and the U.K. more frequently higher on the project series.

5. Mean Achievement Scores on the Project Developed Tests

A project developed achievement test was designed as described in Ch. IV, pp. 49-50. This test was developed for the subject matter areas of language arts grades 8 through 12 and mathematics grades 7 through 11. A sample of 60 pupils by country and ability levels was drawn for each of the grade levels. Because of insufficient numbers, the low ability sample was eliminated. The results of these tests, as indicated by mean number right for grade and ability levels are present in tables 19 and 20.

Table 19

Mean Achievement Score for Language Useage (Project developed test)

	High Ability		Average Ability	
Gr.	U.S.	U.K.	U.S.	U.K.
12	94.00	96.12	84.60	81.19
11	90.89	95.09	73.26	73.02
10	83.65	82.37	77.13	65.98
9	74.24	77.70	66.39	55.42
8	69.16	64.42	60.53	51.13
7	67.88	69.27	52.26	50.07

Table 20

Mean Achievement Scores for Mathematics Useage (Project developed test)

	High Ability		Average Ability	
Gr.	U.S.	U.K.	U.S.	U.K.
11	46.69	45.33	37.09	34.83
10	39.90	39.00	32.62	30.11
9	40.15	35.41	30.35	27.94
8	33.28	36.72	26.77	26.26
7	30.84	33.56	31.48	24.59

6. The Follow-up Sample

A feature of this particular study was an opportunity to continue comparisons of a sub-sample of students who had participated in a previous and similar study comparing the academic achievements of elementary age students of the U.S. and the British Isles. The results of this longitudinal study in the subject matter areas of reading, language and math (for high and average ability groups, public schools only) are presented in tables 21, 22, and 23.

Table 21

Mean Reading Achievement Scores by Country and Ability Levels, Grades One through Twelve

	High Ability		Average Ability	
Gr.	U.S.	U.K.	U.S.	U.K.
12	112.35	120.75	89.66	87.94
11	110.07	113.98	85.64	73.95
10	100.28	106.96	72.85	65.02
9	95.33	105.07	64.68	65.46
8	88.56	86.24	65.16	57.41
7	76.07	78.35	50.81	48.58
6	118.0	118.0	101.0	97.0
5	102.9	105.3	87.6	89.6
4	93.7	102.9	71.8	77.6
3	76.4	77.9	59.9	65.0
2	84.9	86.0	79.5	78.4
1	69.4	82.0	61.3	66.0

Table 22

Mean Language Achievement Scores by Country and Ability Levels, Grades One through Twelve

	High Ability		Average Ability	
Gr.	U.S.	U.K.	U.S.	U.K.
12	151.93	151.37	129.11	117.05
11	144.28	139.47	128.38	104.92
10	136.55	132.97	113.46	94.31
9	133.24	107.41	107.08	86.96
8	109.92	104.88	97.29	81.24
7	102.23	92.11	86.25	74.99
6	128.0	127.0	114.0	104.0
5	114.4	113.1	100.2	97.5
4	103.2	109.2	83.5	84.9
3	87.2	86.3	70.3	70.9
2	68.1	70.7	63.6	63.4
1	51.1	67.5	42.9	51.7

Table 2.3

Mean Mathematics Achievement Scores by Country and Ability Levels, Grades One through Twelve

	High Ability		Average Ability	
Gr.	U.S.	U.K.	U.S.	U.K.
12	118.46	121.80	99.45	98.43
11	121.40	120.82	99.36	80.87
10	111.82	107.34	89.92	74.78
9	108.74	106.05	87.52	73.00
8	107.56	97.02	87.85	72.73
7	91.47	89.32	71.14	60.26
6	105.0	117.0	90.0-	90.0-
5	85.6	93.2	70.8	78.8
4	64.8	85.7	55.8	63.2
3	50.7	59.3	43.2	49.9
2	82.6-	82.7-	77.5	79.2
1	68.8	77.9	58.9	67.3

An examination of Table 2 1 indicates that the British high ability students, with the exception of grades six and eight achieved higher reading scores over the twelve grade span. The British average ability sample scored consistently higher through the fifth grade (except in grade two); however, the trend was reversed from the 6th grade on when the U.S. average ability sample scored higher at all levels with the exception of grade nine.

The longitudinal study of language arts achievement, as depicted in Table 22, indicated the United Kingdom high and average ability samples scored higher in the early elementary years, but from the fifth grade level on, the United States in both ability categories scored consistently higher.

Table 23 indicates that the United Kingdom high and average ability samples scored consistently higher in mathematics attainment throughout the elementary school years. However, the U.S. sample was consistently higher in both ability groups at all junior-senior high school levels (with the exception of the 12th grade high ability category).

CHAPTER VII. SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

The major purpose of this cross-cultural study was to compare the academic achievement of British Isles and United States secondary school students in the United States and British equivalent of grades 7-12 by ability levels in the subject-matter areas of reading language, mathematics and to the degree possible, science. It was hypothesized that (1) significant differences would be found between students' mean achievement in the subject matter areas of arithmetic, reading, English-usage, and science (a) among British and American secondary school students of high, average, and low ability, and (b) attending public and private institutions; (2) specific periods could be identified wherein respective students' achievement across ability levels and grade levels for respective countries became statistically different in the areas of reading, arithmetic, English-usage and science; and (3) that specific factors could be identified which influence pupil achievement and, further, the degree to which individual factors may or may not be a significant influence on achievement could also be ascertained. A further and separate objective of this study was to assess the significance of differences in academic progress, through mean achievement, for a separate sample of approximately 300 students involved as fourth, fifth, and sixth graders in a previously supported elementary study. These students during the execution phase of this study were eighth, ninth and tenth graders.

The achievement analysis was based primarily upon scores earned on the California Achievement Test as modified. While a project-developed test was administered on a pilot basis, this test was found to be generally less satisfactory from both the standpoint of teacher validation and correlation with class rank and scores of nationally standardized tests.

Summarizations of the performance of British and United States students were presented in Tables 5 through 19. Results indicated the following:

1. Grade point averages are more significant predictors for both student gains and levels of achievement than standardized achievement tests.
2. Pre-test scores are also significant predictors of both gains, and the comparative rank which may be anticipated, for students where pre and post tests are administered for the purpose of measuring achievement.
3. High ability students consistently gain more than average or low ability students, Thus, the gap appears to increase among ability levels as they progress upward along the educational continuum.
4. Psychological-sociological factors which influence academic achievement are more readily exposed through language arts testing than through reading, mathematics or science.
5. British high ability students showed higher levels of achievement in reading than the United States high ability group. On the other hand, United States average and low ability students generally scored higher than their British counterparts.
6. United States students registered higher levels of achievement in language useage at all grades and ability levels.
7. With the exception of 12th grade high ability students, United States students registered higher levels of achievement in mathematics at all grades and ability levels.
8. United States high and average ability students achieved at higher levels in 7th, 8th, and 9th grade science than did British high and

average ability students; however, British low ability students achieved higher at all three grade levels.

9. On the project-developed tests for language and mathematics, United States average ability students achieved at higher levels for each grade, while United Kingdom high ability students generally achieved higher for language usage. United States high ability students (grades 8, 9, 10) achieved higher for mathematics.

10. The longitudinal study (grades one through twelve) indicated that British high ability students achieved higher reading scores than United States high ability students at all grade levels except 6th and 8th. United States high ability students had the highest level of achievement in language arts for all grade levels with the exception of one, two and four. In the subject matter area of mathematics, British high ability students consistently achieved at a higher level through the first six grades. However, in grades seven through eleven, United States pupils achieved at a higher level with British students again achieving higher in the 12th grade.

11. In the longitudinal study, United States average ability students in all subject matter areas with one exception (9th grade reading) achieved at a higher level in all subjects throughout all the secondary grades; however, British average ability students achieved higher in all subjects in most of the elementary grades.

12. The margin between high and average ability groupings were greater for the British sample.

13. There is no discernible difference between achievement levels of pupils with kindergarten experience and those with no kindergarten experience.

14. There appeared to be little difference between the achievement of public and private school pupils.

Other findings of the study point up the following:

1. Educational systems in the United States and England, Scotland and Northern Ireland are different in organizational structure and curricular offerings. However, these differences have lessened since the earlier reported elementary achievement study.
2. The community environment in which education takes place should be of more significance in determining both the educational objectives of local schools and the means whereby these objectives are achieved.
3. The headmaster or school principal is the single most important educator influencing secondary education in both the United States and the British Isles. While United States high school principals tend to become qualified only through completion of graduate programs in school administration, at the time of this study no such prerequisites existed in the United Kingdom. Despite differences in training, backgrounds, however the philosophical viewpoints of the United States and the United Kingdom school administrators were similar in most respect. American school administrators do tend to spend more time in office and administrative routine and in attendance at professional meetings than their British counterparts.
4. United States teachers as a group had significantly more undergraduate and graduate training and had participated in more in-service training activities than the British teachers.
5. Pupil personnel and guidance programs are more popular and tended to be more comprehensive in the United States while the British have

a more extensive free health services program.

6. In the area of school activities, the chief distinction noted was a greater emphasis in the British school on activities of an academic nature and by virtue of their locale, more organized trips to other countries. The American secondary school on the other hand, placed a far greater emphasis on varsity athletics and typically drew large, supporting crowds of both students and townspeople to local sporting events. Also noted was a greater emphasis on military-type precision marching bands, whereas, British schools tended to place more emphasis on orchestra and choral groups.

IMPLICATIONS

1. Standardized tests are less significant as predictors of future pupil achievement than grade point average.
2. Schools and school systems desiring some form of standardized achievement tests should consider the development of their own school or system-wide achievement instruments.
3. High ability students need greater curricular flexibility which will enable them to progress at both a rate and to a level of learning more consistent with their ability.
4. The comprehensive system of education, common throughout the United States and currently being implemented in the British Isles, may provide for a higher standard of education for average and below average ability, students, but, on the other hand, may slightly retard the education of high ability students. This would appear to be especially the case in small schools where only a relatively small number of high ability students would be enrolled.

5. Programs of counseling and guidance should investigate the possible insights into pupil behavior which may be exposed through language arts activities.
6. School systems and their educational programs should reflect national and local differences and needs; however, they can profit from the study of successful educational programs in other cultures.
7. Because of the significance of the headmaster or school principal in shaping both the educational program and the environment in which it takes place, more attention must be given to the selection and preparation of these personnel.
8. British school systems should determine if pupil personnel and guidance programs can be effective additions to their schools, while United States schools may want to examine the possibility of more comprehensive free health services available to their students.
9. Activity programs in schools generally reflect what the tax-paying public will support.

PROJECT RECOMMENDATIONS:

Based on the summarized findings and previously stated implications of this study, the following recommendations are suggested.

1. The uniqueness of individual schools and the students which populate these schools seem to suggest individual differences, rather than standardization. It is therefore recommended that less emphasis be placed on standardized tests and more emphasis be given to the use of locally developed achievement tests.
2. Educational programs, exemplified in some instances by the ungraded school and schools without walls, which provide greater opportunities

for students to progress according to their ability and achievement, should be encouraged. Educational research activities, however, are recommended in this regard.

3. More adequate provisions must be sought for students of both average and below average ability in smaller schools and systems in both the United States and the British Isles.
4. It is recommended that schools and school systems in both the United States and the British Isles become more "localized", without sacrificing national objectives, in their approach to education. Local education needs assessment should be one of the bases for determining local education objectives.
5. It is recommended that programs of pupil personnel and guidance implement and "practice what they preach" regarding the role and contribution of the classroom teacher in the school guidance program.
6. It is recommended that institutions preparing school administrators in the United States examine their training programs to insure appropriate breadth of preparation and the inclusion of humanistic or affective aspects of education.
7. It is also recommended that both elementary and secondary schools in the British Isles develop pilot guidance programs and that teacher training institutions similarly initiate pilot programs in the training of school counselors.
8. It is also recommended that teacher training institutions in the British Isles consider the development of training programs for headmasters and other school administrators.

9. It is recommended that studies be initiated to more fully explore the impact of school activities on pupil development.

10. It is recommended that additional studies investigate the impact of kindergarten on eventual a) educational achievement; and b) social personal development.

11. It is recommended that studies further investigate the readiness factor and its impact on learning at the various grade levels.

12. It is ironic at a time when American education is searching for answers to its many educational problems, educational research monies are de-emphasizing opportunities to utilize the resources and findings of other countries. It is therefore recommended that renewed emphasis be given by the United States Office of Education and other funding agencies to comparative studies.

13. It is recommended that this particular study be replicated by this project staff in 1980.

14. It is recommended that a comparative study of higher educational institutions and the achievement of pupils in various programs within such institutions in the United States, the British Isles and Canada be undertaken at the earliest opportunity.

It is further recommended that a portion of this study should include a continued follow-up of those students in the previously indicated elementary and this current secondary study in order to take advantage of the considerable data collected on these pupils (i.e., achievement data, personal-social data and educational-occupational data.)

A Comparative Study of the
Academic Achievements of
Secondary Age Students of the
United States and the British Isles

Appendix
Addendum

APPENDIX A

PROJECT DEVELOPED TESTS

English Usage - Form 1
English Usage - Form 2
Mathematics

FORM I

ENGLISH USAGE Section _____

Directions; Mark the letter of the correct or better word in each sentence below.

1. (a) Whose, (b) who's in the pole position?
2. (a) You're, (b) your going to like the crossed-flags signal when the race is half over.
3. (a) They're, (b) their slowing down because they've seen the yellow flag.
4. (a) It's, (b) its the signal that the track is unsafe for racing.
5. Have you noticed (a) they're, (b) their respect for the flag code?
6. A driver hurt (a) himself, (b) hisself on the last turn.
7. He doesn't look badly hurt to Frank and (a) me, (b) myself.
8. (a) Them, (b) those are the hazards of auto racing.
9. (a) We, (b) the spectators are relieved to see him back in the race.
10. We don't like to see (a) them, (b) those daring drivers injured.
11. Somebody has lost (a) his, (b) their on the right side.
12. The music sounds (a) good, (b) well.
13. Build your bird house (a) good, (b) well.
14. This honey tastes (a) delicious, (b) deliciously.
15. Lick the flap of the envelope (a) good, (b) well.
16. The milk tastes (a) sweet, (b) sweetly.
17. Frank and (a) him, (b) he are auto racing fans.
18. Are you coming to the track with Dick and (a) I, (b) me.
19. (a) Her and I, (b) she and I are going to the world's fastest track.
20. The best drivers are Johnny and (a) him, (b) he.
21. (a) Who, (b) whom do you pick to win the first heat?
22. (a) Who, (b) whom knows what that green flag means?
23. None of the flowers (a) was (b) were left.
24. (a) Who, (b) whom do you know in Chaicgo?
25. The thirsty puppy (a) dramk, (b) drunk all the water.
26. Janet had (a) rose, (b) risen early in the morning.
27. Jim (a) lay, (b) laid his fishing rod in the boat.
28. Each of us (a) has, (b) have earned money during vacation.
29. No one from outer space (a) has, (b) have landed in our yard.
30. Both of these games (a) bore, (b) bores my father.
31. The bracelets in that window (a) is, (b) are worth over a thousand dollars each.
32. Each of the dogs (a) are, (b) is a prize winner.
33. The dog has been (a) laying, (b) lying on his blanket since breakfast.
34. I have (a) laid, (b) lain down for my nap every day at the same hour.
35. Have you (a) dived, (b) dove off the high diving platform.
36. Please (a) lay, (b) lie the test on my desk when you have finished using it.
37. Everyone must do (a) his, (b) their best.
38. I questioned (a) his, (b) him paying so much.
39. I believe that he has (a) swam, (b) swum the English Channel.
40. Neither Mary nor Ann (a) was, (b) were in the play.
41. This sweater is different (a) than, (b) from the one I ordered.
42. We can hardly see (a) anything, (b) nothing from these seats.
43. He said that if he (a) had, (b) had of been responsible, he would have admitted it.

FORM I VOCABULARY

Directions: In each of the questions below, decide which of the four lettered words has most nearly the same meaning as the under-lined word. Mark the corresponding answer space on your answer sheet.

1. erroneous
   (a) difficult
   (b) mistake
   (c) unknown
   (d) unsolved
   (e) none of these

2. ruthless
   (a) avoids
   (b) rules
   (c) cruel
   (d) lost out
   (e) none of these

3. ingenious
   (a) insane
   (b) clever
   (c) adventuresome
   (d) poor
   (e) none of these

4. disheveled
   (a) not honest
   (b) uneven
   (c) extra large
   (d) disarray
   (e) none of these

5. indigent
   (a) needy
   (b) angry
   (c) running away
   (d) exciting
   (e) none of these

6. precocious
   (a) valuable
   (b) early beginning
   (c) at the end
   (d) illness
   (e) none of these

7. obtrude
   (a) bad mannered
   (b) thrusts out
   (c) reject
   (d) brag
   (e) none of these

8. plateau
   (a) commendation
   (b) level
   (c) warm weather
   (d) vision
   (e) none of these

9. craving
   (a) drawing
   (b) desires for
   (c) resting
   (d) cutting
   (e) none of these

10. restraints
   (a) reference
   (b) helping
   (c) sifting
   (d) restrictions
   (e) none of these

11. adequate
   (a) anxious
   (b) serious
   (c) queer
   (d) sufficient
   (e) none of these

12. calamity
   (a) message
   (b) discovery
   (c) claim
   (d) disaster
   (e) none of these

13. decline
   (a) necessary
   (b) refuse
   (c) perform
   (d) embark
   (e) none of these

14. dejected
   (a) purpose
   (b) emergency
   (c) depressed
   (d) fate
   (e) none of these

15. destination
(a) stand against
(b) origin
(c) expected place of arrival
(d) easily done
(e) none of these

16. reluctant
(a) dreary
(b) greedy
(c) reject
(d) unwilling
(e) none of these

17. liberate
(a) set free
(b) set on fire
(c) never-ending
(d) very noisy
(e) none of these

18. eminent
(a) sum up
(b) take for granted
(c) forbid
(d) famous
(e) none of these

19. amiable
(a) lengthen
(b) total
(c) friendly
(d) relieve
(e) none of these

20. conjecture
(a) guess
(b) describe
(c) bring together
(d) objection
(e) none of these

21. commensurate
(a) begin
(b) graduation
(c) commendable
(d) equal
(e) none of these

22. contagious
(a) catching
(b) quickly
(c) avoids
(d) burning
(e) none of these

23. sagacious
(a) give away
(b) keen judgment
(c) cowardly
(d) loud
(e) none of these

24. innuendo
(a) new
(b) insinuates
(c) novelty
(d) accidentally
(e) none of these

25. ambiguous
(a) hopeful
(b) too much
(c) desires
(d) uncertain
(e) none of these

26. semblance
(a) simplicity
(b) likeness
(c) goodness
(d) strength
(e) none of these

27. trifling
(a) modern
(b) solid
(c) unimportant
(d) gradual
(e) none of these

28. advantageous
(a) splendid
(b) admirable
(c) favorable
(d) average
(e) none of these

29. abrupt
(a) slow
(b) rude
(c) sudden
(d) broken
(e) none of these

30. ponderous
(a) clumsy
(b) important
(c) valuable
(d) irrelevant
(e) none of these

31. filament
(a) ingredient
(b) thread-like object
(c) cleanser
(d) support
(e) none of these

32. effusive
(a) loquacious
(b) verbal
(c) gushing
(d) handsome
(e) none of these

33. dissipated
(a) vivacious
(b) weak
(c) gathered
(d) broken up
(e) none of these

34. unwonted
(a) unusual
(b) desired
(c) deserved
(d) shamelessness
(e) none of these

35. affable
(a) affected
(b) inexpensive
(c) pleasent
(d) not available
(e) none of these

36. dubious
(a) doubtful
(b) dreadful
(c) dull
(d) curious
(e) none of these

37. attain
(a) return
(b) reach
(c) attack
(d) train
(e) none of these

38. preface
(a) tragedy
(b) ending
(c) arrangement
(d) introduction
(e) none of these

39. infinite
(a) fearful
(b) inferior
(c) fearless
(d) endless
(e) none of these

40. discretion
(a) determination
(b) desertion
(c) jealousy
(d) judgment
(e) none of these

41. jurisdiction
(a) presence
(b) language
(c) justice
(d) authority
(e) none of these

42. decompose
(a) sleep
(b) compare
(c) decay
(d) decide
(e) none of these

43. elapse
(a) lengthen
(b) sink
(c) pass
(d) sleep
(e) none of these

44. frustrate
(a) deaden
(b) defeat
(c) frighten
(d) try
(e) none of these

45. imperative
(a) perfect
(b) improved
(c) tricky
(d) urgent
(e) none of these

SECTION

FORM I SPELLING

1. (a) delicious
(b) calender
(c) icy
(d) museum
(e) none wrong

2. (a) initiate
(b) unanimous
(c) embicle
(d) reluctant
(e) none wrong

3. (a) judgement
(b) delegation
(c) pamphlets
(d) melancholy
(e) none wrong

4. (a) statistics
(b) quantities
(c) croshaying
(d) celestial
(e) none wrong

5. (a) substitute
(b) questionnaire
(c) correspond
(d) resteraunt
(e) none wrong

6. (a) labryinth
(b) contemptuous
(c) righteous
(d) curiosity
(e) none wrong

7. (a) rheumatism
(b) anonyomous
(c) matrimony
(d) flexible
(e) none wrong

8. (a) felicity
(b) compliment
(c) sincerely
(d) bulletin
(e) none wrong

9. (a) inocuous
(b) approximately
(c) efficient
(d) vacancies
(e) none wrong

10. (a) gracious
(b) scholarship
(c) contemplate
(d) satelite
(e) none wrong

11. (a) received
(b) impulse
(c) anecdote
(d) similar
(e) none wrong

12. (a) separate
(b) shining
(c) acustom
(d) nephew
(e) none wrong

13. (a) argument
(b) suitable
(c) antacedent
(d) precipitation
(e) none wrong

14. (a) permision
(b) propaganda
(c) teenager
(d) forcibly
(e) none wrong

15. (a) recomend
(b) business
(c) enough
(d) weird
(e) none wrong

16. (a) business
(b) again
(c) definate
(d) summary
(e) none wrong

17. (a) comming
(b) beginning
(c) pleasant
(d) pitfall
(e) none wrong

18. (a) beneficiary
(b) cooperation
(c) dissapeared
(d) annihilate
(e) none wrong

19. (a) exausted
(b) government
(c) mathematics
(d) appropriate
(e) none wrong

20. (a) noisy
(b) bitter
(c) trout
(d) scaucer
(e) none wrong

21. (a) tonsilitis
(b) adjourn
(c) feign
(d) legacy
(e) none wrong

22. (a) wrestle
(b) seive
(c) microscope
(d) generator
(e) none wrong

23. (a) accessories
(b) bookkeeper
(c) equity
(d) celler
(e) none wrong

24. (a) technical
(b) liberal
(c) illigible
(d) athletics
(e) none wrong

25. (a) vengence
(b) supplement
(c) hemorrhage
(d) beseiged
(e) none wrong

26. (a) ambassador
(b) indefinitely
(c) assesment
(d) renewal
(e) none wrong

27. (a) kerosene
(b) sketch
(c) mediocre
(d) percieve
(e) none wrong

28. (a) concentrate
(b) elgible
(c) worthwhile
(d) vegetable
(e) none wrong

29. (a) dominent
(b) dormitory
(c) misjudge
(d) secure
(e) none wrong

30. (a) minister
(b) alright
(c) eliminate
(d) deem
(e) none wrong

31. (a) federal
(b) mortal
(c) parole
(d) comparative
(e) none wrong

32. (a) accrued
(b) beneficial
(c) chaperon
(d) neice
(e) none wrong

33. (a) boulevards
(b) exquisite
(c) glaciers
(d) imminent
(e) none wrong

34. (a) intimate
(b) inventory
(c) literature
(d) superceded
(e) none wrong

35. (a) navigable
(b) parliament
(c) picturesque
(d) temparance
(e) none wrong

PUNCTUATION AND CAPITALIZATION

Please choose the letter of the sentence which has been punctuated and capitalized correctly.

1. (a) Have you thought of a title for your report, Larry, Mildred asked?
   (b) "Have you thought of a title for your report, Larry?" Mildred asked.
   (c) "Have you thought of a title for your report, Larry," Mildred asked.
   (d) Have you thought of a title for your report Larry, Mildred asked.

2. (a) Yes I am calling it Hawaiian Wonderland, answered Larry Because that's the way I think of Hawaii.
   (b) "Yes, I am calling it Hawaiian Wonderland, answered Larry, because that's the way I think of Hawaii.
   (c) "Yes, I am calling it 'Hawaiian Wonderland,'" answered Larry, "because that's the way I think of Hawaii."
   (d) "Yes I am calling it "Hawaiian Wonderland," answered Larry, "because that's the way I think of Hawaii."

3. (a) I feel that way too Mildred agreed.
   (b) "I feel that way too," Mildred agreed.
   (c) "I feel that way, too," Mildred agreed.
   (d) "I feel that way too," mildred agreed.

4. (a) Gracious how I would like to visit those islands and see Hawaii's wonders.
   (b) Gracious, how I would like to visit those islands and see Hawaiis wonders.
   (c) Gracious, how I would like to visit those islands and see Hawaii's wonders
   (d) Gracious, how I would like to visit those islands and see Hawaii's wonders!

5. (a) The Japanese attacked pearl harbor on December 7 1941.
   (b) The Japanese attacked Pearl Harbor on December 7 1941
   (c) The Japanese attacked Pearl Harbor on December, 7, 1941.
   (d) The Japanese attacked Pearl Harbor on December 7, 1941.

6. (a) As a result of the long drought the grass was brown, and the cattle hunted in vain for food.
   (b) As a result of the long drought, the grass was brown and the cattle hunted in vain for food.
   (c) As a result of the long, drought the grass was brown, and the cattle hunted in vain for food.
   (d) As a result, of the long drought the grass was brown and the cattle hunted in vain for food.

7. (a) President Barnes, Ph.D. left this morning for Texas, his home state.
   (b) President Barnes Ph.D., left this morning for Texas his home state.
   (c) President Barnes, PhD, left this morning for Texas, his home state.
   (d) President Barnes, Ph.D. left this morning for Texas his home state.

8. (a) When Jack London was a young man he went to Alaska; he later incorporated his experiences into many of his short stories.
   (b) When Jack London was a young man he went to alaska; he later incorporated his experiences into many of his short stories.
   (c) When Jack London was a young man, he went to Alaska; he later incorporated his experiences into many of his short stories.
   (d) When Jack London was a young man: he went to Alaska; he later incorporated his experiences into many of his short stories.

b 9. (a) An I-dare-you-to-teach-me-something attitude prevents some students from being successful in school
(b) An I-dare-you-to-teach-me-something attitude prevents some students from being successful in school.
(c) an I dare you to teach me something attitude prevents some students from being successful in school.
(d) An I dare you to teach me something attitude prevents some students from being successful in school?

d 10. (a) These octobor Saturdays' and Sundays are autumn's finest days.
(b) These October Saturdays and Sundays are autumns finest days.
(c) These October Saturdays' and Sundays' are autumn's finest days.
(d) These October Saturdays and Sundays are autumn's finest days.

a 11. (a) "Whenever I have planned an unusually good dinner, it seems that some member of the family is late," complained Mother.
(b) "Whenever I have planned an unusually good dinner it seems that some member of the family is late" complained Mother.
(c) "Whenever I have planned an unusually good dinner it seems that some member of the family is late," complained mother.

c 12. (a) Dad gave only two reasons for not wanting me to have a car (1) insurance costs are too high and (2) studies have shown that high-school students who drive cars tend to neglect their school work.
(b) Dad gave only two reasons for not wanting me to have a car: (1) insurance costs are too high and (2) studies have shown that high school students who drive cars tend to neglect their school work.
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d 13. (a) "Benjamin Franklin said: "Save the pennies and the dollars will take care of themselves," John quoted.
(b) "Benjamin Franklin said: "Save the pennies and the dollars will take care of themselves" John quoted
(c) "Benjamin Franklin said: 'Save the pennies and the dollars will take care of themselves" John quoted.
(d) "Benjamin Franklin said: 'Save the pennies and the dollars will take care of themselves,'" John quoted.

a 14. (a) Les, the editor of the school paper, concluded his editorial with the following quotation: The battle, Sir, is not to the strong alone; it is to the vigilent, the active, and the brave.
(b) Les, the editor of the school paper concluded his editorial with the following quotation The battle Sir is not to the strong alone; it is to the vigilent, the active, and the brave.
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(d) Les, the editor of the school paper, concluded his editorial with the following quotation: The battle Sir is not to the strong alone, it is to the vigilent, the active, and the brave.

PUNCTUATION AND CAPITALIZATION

b 15. (a) The old lady said, Thank you for your help, young man.
(b) The old lady said, "Thank you for your help, young man."
(c) The old lady said, "Thank you for your help young man."
(d) The old lady said, "Thank you for your help, young man".

a 16. (a) Bret Harte, an American author, wrote stories about life in mining camps.
(b) Bret Harte, an american author, wrote stories about life in mining camps.
(c) Bret Harte an american author wrote stories about life in mining camps.
(d) Bret Harte, an American author wrote stories about life in mining camps.

c 17. (a) The cost, however is more than I can afford.
(b) The cost, however, is more than I can afford
(c) The cost, however, is more than I can afford.
(d) The cost, however; is more than I can afford.

b 18. (a) Mr. McCormick who has his office at 33 South Michigan Avenue Nashville 5, Tennessee has been elected to the school board.
(b) Mr. McCormick, who has his office at 33 South Michigan Avenue, Nashville 5, Tennessee has been elected to the school board.
(c) Mr. McCormick, who has his office at 33 South Michigan Avenue Nashville 5, Tennessee has been elected to the school board.
(d) Mr. McCormick, who has his office at 33 South Michigan Avenue, Nashville 5 Tennessee has been elected to the school board.

b 19. (a) The article signed "James B. Doyle, PHD" was reprinted in all the local newspapers.
(b) The article signed "James B. Doyle, Ph.D." was reprinted in all the local newspapers.
(c) The aritcle signed James B. Doyle PhD was reprinted in all the local newspapers.
(d) The article signed James B. Doyle, PhD was reprinted in all the local newspapers.

a 20. (a) The Hon. Winthrop P. Hodges, Sr. presided over the trial.
(b) The Hon Winthrop P. Hodges, Sr. presided over the trial.
(c) The Hon. Winthrop P. Hodges Sr. presided over the trial.
(d) The Hon. Winthrop P. Hodges, Sr presided over the trial.

FORM II ENGLISH USAGE

Directions: Mark the letter of the correct or better word in each sentence below.

a 1. I don't know (a) if, (b) whether I can go with you.
b 2. Larry would (a) of, (b) have gone with us if he had known sooner.
b 3. This is just (a) between, (b) among the three of us.
b 4. He was rewarded (a) by, (b) with a trip to Washington, D.C.
b 5. I am (a) continuously, (b) continually being interrupted in my work.
b 6. As soon as he comes (a) in, (b) into the room, everyone will shout, "Surprise!"
b 7. I cannot (a) except, (b) accept your invitation since I shall be out of town.
a 8. There are (a) fewer, (b) less people here than there were last year.
a 9. It looks (a) like, (b) as if I was mistaken.
b 10. She never makes a decision (a) without, (b) unless she first finds out what her friends think.
b 11. Joan wants to be an actress and, (a) as, (b) like many aspiring actresses, is working with an amateur group.
a 12. The contestants dived (a) off, (b) off of the edge of the pool.
a 13. Tie your dog (a) outside, (b) outside of the garage.
a 14. I give you my word that I (a) shall, (b) will be there on time.
b 15. We (a) should, (b) would like to see you soon again.
b 16. Alex (a) better, (b) had better stop wasting so much time.
a 17. The others (a) must have, (b) must of left already.
b 18. They (a) hadn't ought, (b) ought not to have repeated that slanderous gossip.
b 19. I (a) should, (b) would never have let you borrow my notebook if I had known you would be so careless.
b 20. He is determined that he (a) shall, (b) will go to college.
a 21. You (a) ought, (b) had ought to apologize for your rudeness.
b 22. I told you I (a) should, (b) would do it, and I will.
b 23. The idea (a) what, (b) that you suggested sounds workable to me.
a 24. Physics (a) is, (b) are difficult for me to understand.
a 25. I am (a) surely, (b) sure glad that the play was successful.
b 26. We won't go (a) without, (b) unless you go with us.
b 27. Miss Thompson always speaks to us (a) like, (b) as if we were equals.
a 28. I am a better player than (a) he, (b) him.
a 29. We have better songs than (a) they, (b) them.
b 30. Suzi (a) who, (b) whom you saw at the game, also went last week.
a 31. Neither Mary nor Ann (a) was, (b) were in the play.
a 32. Everyone must do (a) his, (b) their best.
b 33. (a) Whose, (b) Who's in the pole position?
b 34. Have you noticed (a) they're, (b) their respect for the flag code?
b 35. We don't like to see (a) them, (b) those daring drivers injured.
b 36. Lick the flap of the envelope (a) good, (b) well.
b 37. The best drivers are Johnny and (a) him, (b) he.
a 38. The thirsty puppy (a) drank, (b) drunk all the water.
a 39. Both of these games (a) bore, (b) bores my father.
a 40. Have you (a) dived, (b) dove off the high diving platform?
a 41. Neither Mary nor Ann (a) was, (b) were in the play.
b 42. This sweater is different (a) than, (b) from the one I ordered.
a 43. We can hardly see (a) anything, (b) nothing from these seats.
a 44. He said that if he (a) had, (b) had of been responsible, he would have admitted it.

FORM II VOCABULARY

Directions: In each of the questions below, decide which of the four lettered words has most nearly the same meaning as the underlined word. Mark the corresponding answer space on your answer sheet.

c 1. intervene
(a) introduce
(b) belong
(c) interfere
(d) intend
(e) none of these

c 2. appalling
(a) covering
(b) appealing
(c) dreadful
(d) cheerful
(e) none of these

b 3. cite
(a) see
(b) quote
(c) excite
(d) cry
(e) none of these

c 4. falter
(a) change
(b) fall
(c) hesitate
(d) tie
(e) none of these

a 5. gaudy
(a) showy
(b) greedy
(c) rowdy
(d) healthy
(e) none of these

b 6. alien
(a) lean
(b) foreign
(c) native
(d) natural
(e) none of these

b 7. equivocal
(a) fact
(b) uncertain
(c) equal to
(d) opposed

a 8. insurgents
(a) rebels
(b) physicians
(c) liquids
(d) movement
(e) none of these

b 9. recalcitrant
(a) weak
(b) unruly
(c) tenacious
(d) sick
(e) none of these

d 10. pilferage
(a) reward
(b) goods
(c) duty
(d) stolen goods
(e) none of these

c 11. scourge
(a) applaude
(b) avoid
(c) to punish severly
(d) incite
(e) none of these

d 12. exorbitant
(a) heavy
(b) stringent
(c) fast
(d) exceeding
(e) none of these

b 13. rejuvenated
(a) extinguished
(b) renewed
(c) decreased
(d) enlisted

c 14. expedient
(a) meaningless
(b) wise
(c) advisable
(d) foolish
(e) none of these

FORM II VOCABULARY

d 15. crux
(a) crutch
(b) support
(c) flaw
(d) main
(e) none of these

a 16. sanction
(a) decree
(b) rebel
(c) disagreement
(d) treaty
(e) none of these

a 17. affluent
(a) wealthy
(b) static
(c) blowing
(d) excitable

d 18. deprecate
(a) increase
(b) tolerate
(c) admonish
(d) disapprove
(e) none of these

b 19. imperious
(a) devious
(b) commanding
(c) adjustable
(d) conscientious
(e) none of these

d 20. incessant
(a) determined
(b) courageous
(c) specific
(d) continual

a 21. ostensible
(a) open to view
(b) obvious
(c) retiring
(d) natural
(e) none of these

d 22. veracity
(a) strength
(b) deceit
(c) suspicion
(d) truthfulness
(e) none of these

c 23. apparition
(a) jeweled necklace
(b) workshop
(c) ghostly appearance
(d) slavedriver
(e) none of these

a 24. venerable
(a) calling forth respect
(b) sacred
(c) strong
(d) forceful
(e) none of these

a 25. vacillation
(a) hesitate
(b) release
(c) fleshless
(d) complimentary
(e) none of these

b 26. erroneous
(a) difficult
(b) mistake
(c) unknown
(d) unsolved
(e) none of these

a 27. indigent
(a) needy
(b) angry
(c) running away
(d) exciting
(e) none of these

d 28. restraints
(a) reference
(b) helping
(c) sifting
(d) restrictions
(e) none of these

FORM II VOCABULARY

c 29. destination
(a) stand against
(b) origin
(c) expected place of arrival
(d) easily done
(e) none of these

a 30. conjecture
(a) guess
(b) describe
(c) bring together
(d) objection
(e) none of these

d 31. ambiguous
(a) hopeful
(b) too much
(c) desires
(d) uncertain
(e) none of these

b 32. semblance
(a) simplicity
(b) likeness
(c) goodness
(d) strength
(e) none of these

c 33. trifling
(a) modern
(b) solid
(c) unimportant
(d) gradual
(e) none of these

c 34. advantageous
(a) splendid
(b) admirable
(c) favorable
(d) average
(e) none of these

c 35. abrupt
(a) slow
(b) rude
(c) sudden
(d) broken
(e) none of these

a 36. ponderous
(a) clumsy
(b) important
(c) valuable
(d) irrelevant
(e) none of these

b 37. filament
(a) ingredient
(b) thread like object
(c) cleanser
(d) support
(e) none of these

c 33. effusive
(a) loquacious
(b) verbal
(c) gushing
(d) handsome
(e) none of these

d 39. dissipated
(a) vivacious
(b) weak
(c) gathered
(d) broken up
(e) none of these

b 40. unwonted
(a) shamelessness
(b) unusual
(c) desired
(d) deserved

FORM II SPELLING

b 1. (a) delicious
(b) calender
(c) icy
(d) museum
(e) none wrong

d 2. (a) substitute
(b) questionnaire
(c) correspond
(d) resteraunt
(e) none wrong

d 3. (a) gracious
(b) scholarship
(c) contemplate
(d) satelite
(e) none wrong

a 4. (a) recomend
(b) business
(c) enough
(d) weird
(e) none wrong

c 5. (a) business
(b) again
(c) definate
(d) summary
(e) none wrong

d 6. (a) noisy
(b) bitter
(c) trout
(d) scaucer
(e) none wrong

a 7. (a) tonsilitis
(b) adjourn
(c) feign
(d) legacy
(e) none wrong

b 8. (a) wrestle
(b) seive
(c) microscope
(d) generator
(e) none wrong

d 9. (a) accessories
(b) bookkeeper
(c) equity
(d) celler
(e) none wrong

c 10. (a) technical
(b) liberal
(c) illigible
(d) athletics
(e) none wrong

a 11. (a) vengence
(b) supplement
(c) hemorrhage
(d) beseiged
(e) none wrong

e 12. (a) ambassador
(b) indefinitely
(c) assessment
(d) renewal
(e) none wrong

d 13. (a) kerosene
(b) sketch
(c) mediocre
(d) percieve
(e) none wrong

b 14. (a) troughs
(b) ingeneous
(c) voyagers
(d) yacht
(e) none wrong

a 15. (a) imaginry
(b) minister
(c) velocity
(d) surgeon
(e) none wrong

b 16. (a) peaceable
(b) intolrable
(c) knead
(d) divine
(e) none wrong

b 17. (a) worship
(b) vacinations
(c) attorney
(d) masculine
(e) none wrong

a 18. (a) remitances
(b) syndicated
(c) transactions
(d) bouillon
(e) none wrong

FORM II SPELLING

c 19. (a) knights
(b) qualms
(c) relevent
(d) sovereign
(e) none wrong

b 20. (a) consuls
(b) jeoperdy
(c) nuclear
(d) subpoenas
(e) none wrong

a 21. (a) recipracate
(b) simultaneously
(c) etiquette
(d) aeronautics
(e) none wrong

a 22. (a) weilds
(b) spontaneous
(c) quires
(d) hypocrisy
(e) none wrong

b 23. (a) quorums
(b) sacriligious
(c) affidavits
(d) disgustedly
(e) none wrong

b 24. (a) permissible
(b) carboretor
(c) franchise
(d) rites
(e) none wrong

e 25. (a) alleged
(b) superstitious
(c) statistics
(d) serviceable
(e) none wrong

a 26. (a) irrisistible
(b) memorandums
(c) semester
(d) tenement
(e) none wrong

a 27. (a) attendent
(b) collateral
(c) harassed
(d) recede
(e) none wrong

b 28. (a) reliance
(b) rememberance
(c) assistance
(d) admittance
(e) none wrong

e 29. (a) liens
(b) trousseau
(c) appendicitis
(d) erroneous
(e) none wrong

b 30. (a) miscellaneous
(b) ocasionally
(c) scandal
(d) souvenir
(e) none wrong

e 31. (a) embarassment
(b) committed
(c) prominent
(d) counterfeiting
(e) none wrong

c 32. (a) traceable
(b) discretion
(c) despized
(d) chorus
(e) none wrong

a 33. (a) resistence
(b) vigorously
(c) vouchers
(d) suites
(e) none wrong

e 34. (a) warrant
(b) quandry
(c) division
(d) jurisdiction
(e) none wrong

a 35. (a) erroneuous
(b) duly
(c) analysis
(d) paralyzed
(e) none wrong

e 36. (a) inflammation
(b) rumor
(c) deficient
(d) counterfeiting
(e) none wrong

FORM II SPELLING

c 37. (a) vicious
(b) interior
(c) compitent
(d) courageously
(e) none wrong

a 38. (a) tenent
(b) amelioration
(c) convene
(d) verdict
(e) none wrong

PUNCTUATION AND CAPITALIZATION

Please choose the letter of the sentence which has been punctuated and capitalized correctly.

b 1. (a) Have you thought of a title for your report, Larry, Mildred asked?
(b) "Have you thought of a title for your report, Larry?" Mildred asked.
(c) "Have you thought of a title for your report, Larry," Mildred asked.
(d) Have you thought of a title for your report Larry, Mildred asked.

c 2. (a) Yes I am calling it Hawaiian Wonderland, answered Larry Because that's the way I think of Hawaii.
(b) "Yes, I am calling it Hawaiian Wonderland, answered Larry, because that's the way I think of Hawaii.
(c) "Yes, I am calling it 'Hawaiian Wonderland,'" answered Larry, "because that's the way I think of Hawaii."
(d) "Yes I am calling it "Hawaiian Wonderland," answered Larry, "because that's the way I think of Hawaii."

b 3. (a) I feel that way too Mildred agreed.
(b) "I feel that way too," Mildred agreed.
(c) "I feel that way, too," Mildred agreed.
(d) "I feel that way too," mildred agreed.

d 4. (a) Gracious how I would like to visit those islands and see Hawaii's wonders.
(b) Gracious, how I would like to visit those islands and see Hawaiis wonders.
(c) Gracious, how I would like to visit those islands and see Hawaii's wonders
(d) Gracious, how I would like to visit those islands and see Hawaii's wonders!

d 5. (a) The Japanese attacked pearl harbor on December 7 1941.
(b) The Japanese attacked Pearl Harbor on December 7 1941
(c) The Japanese attacked Pearl Harbor on December, 7, 1941.
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b 6. (a) As a result of the long drought the grass was brown, and the cattle hunted in vain for food.
(b) As a result of the long drought, the grass was brown and the cattle hunted in vain for food.
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a 7. (a) President Barnes, Ph.D. left this morning for Texas, his home state.
(b) President Barnes Ph.D., left this morning for Texas his home state.
(c) President Barnes, PhD, left this morning for Texas, his home state.
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c 8. (a) When Jack London was a young man he went to Alaska; he later incorporated his experiences into many of his short stories.
(b) When Jack London was a young man he went to alaska; he later incorporated his experiences into many of his short stories
(c) When Jack London was a young man, he went to Alaska; he later incorporated his experiences into many of his short stories.
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PUNCTUATION AND CAPITALIZATION

9. (a) An I-dare-you-to-teach-me-something attitude prevents some students from being successful in school
   (b) An I-dare-you-to-teach-me-something attitude prevents some students from being successful in school.
   (c) an I dare you to teach me something attitude prevents some students from being successful in school.
   (d) An I dare you to teach me something attitude prevents some students from being successful in school?

10. (a) These october Saturdays' and Sundays are autumn's finest days.
   (b) These October Saturdays and Sundays are autumns finest days.
   (c) These October Saturdays' and Sundays' are autumn's finest days.
   (d) These October Saturdays and Sundays are autumn's finest days.

11. (a) "Whenever I have planned an unusually good dinner, it seems that some member of the family is late," complained Mother.
   (b) "Whenever I have planned an unusually good dinner it seems that some member of the family is late" complained Mother.
   (c) "Whenever I have planned an unusually good dinner it seems that some member of the family is late," complained mother.

12. (a) Dad gave only two reasons for not wanting me to have a car (1) insurance costs are too high and (2) studies have shown that high-school students who drive cars tend to neglect their school work.
   (b) Dad gave only two reasons for not wanting me to have a car: (1) insurance costs are too high and (2) studies have shown that high school students who drive cars tend to neglect their school work.
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   (d) Les, the editor of the school paper, concluded his editorial with the following quotation: The battle Sir is not to the strong alone, it is to the vigilent, the active, and the brave.

PUNCTUATION AND CAPITALIZATION

15. (a) The old lady said, Thank you for your help, young man.
    (b) The old lady said, "Thank you for your help, young man."
    (c) The old lady said, "Thank you for your help young man."
    (d) The old lady said, "Thank you for your help, young man".

16. (a) Bret Harte, an American author, wrote stories about life in mining camps.
    (b) Bret Harte, an american author, wrote stories about life in mining camps.
    (c) Bret Harte an american author wrote stories about life in mining camps.
    (d) Bret Harte, an American author wrote stories about life in mining camps.

17. (a) The cost, however is more than I can afford.
    (b) The cost, however, is more than I can afford
    (c) The cost, however, is more than I can afford.
    (d) The cost, however; is more than I can afford.

18. (a) Mr. McCormick who has his office at 33 South Michigan Avenue Nashville 5, Tennessee has been elected to the school board.
    (b) Mr. McCormick, who has his office at 33 South Michigan Avenue, Nashville 5, Tennessee has been elected to the school board.
    (c) Mr. McCormick, who has his office at 33 South Michigan Avenue Nashville 5, Tennessee has been elected to the school board.
    (d) Mr. McCormick, who has his office at 33 South Michigan Avenue, Nashville 5 Tennessee has been elected to the school board.

19. (a) The article signed "James B. Doyle, PHD" was reprinted in all the local newspapers.
    (b) The article signed "James B. Doyle, Ph.D." was reprinted in all the local newspapers.
    (c) The article signed James B. Doyle PhD was reprinted in all the local newspapers.
    (d) The article signed James B. Doyle, PhD was reprinted in all the local newspapers.

20. (a) The Hon. Winthrop P. Hodges, Sr. presided over the trial.
    (b) The Hon Winthrop P. Hodges, Sr. Presided over the trial.
    (c) The Hon. Winthrop P. Hodges Sr. presided over the trial.
    (d) The Hon. Wintrhop P. Hodges, Sr presided over the trial.

PROPOSED MATHEMATICS EXAMINATION

PROJECT IDENTIFICATION NUMBER [ ]

Name _____ School _____

Subjects Taught _____

INSTRUCTIONS: You will need a questionnaire, a special answer sheet and a pencil in order to complete this questionnaire for the proposed Mathematics Examination. Please read the item and select the response which you feel is applicable.

BEGIN with question number SEVEN below. Find answer row SEVEN on your answer sheet.

7. Sex
   (0) Male
   (1) Female

8. What age groups do you teach?
   (0) 11-13 years
   (1) 14-16 years
   (2) 17-18 years
   (3) Both (0) and (1) above
   (4) Both (0) and (2) above
   (5) Both (1) and (2) above
   (6) All three age groups

9. What type of pupil do you teach?
   (0) High ability (Top 30% of pupil population)
   (1) Average ability (Middle 40%)
   (2) Low ability (Bottom 30%)
   (3) High and Average ability
   (4) High and Low ability
   (5) Low and Average ability
   (6) All of the above

BE SURE THAT YOU HAVE FILLED IN JUST ONE SPACE FOR EACH ANSWER NUMBER.

Please feel free to ask questions if you are in doubt regarding your responses.

PLEASE REMEMBER IT IS IMPORTANT TO FOLLOW THE INSTRUCTIONS AS LISTED ON THE INSTRUCTION SHEET.

ITEMS:

10. Add
$$\begin{array}{r} 5433 \\ 390 \\ 7259 \\ 47 \\ \hline 4753 \end{array}$$

11. Subtract:
$$\begin{array}{r} 377777 \\ 333333 \\ \hline \end{array}$$

12. Add: $2\frac{1}{2} + 3\frac{1}{3} + 6\frac{7}{12} = ?$

13. If set A has five members and set B has 7 members, how many members are in A x B?

14. 2.50 - what per cent?

15. $\frac{3}{7} + \frac{1}{2} = ?$

16. Reduce to lowest terms:

$$\frac{a^2 - 3a - 4}{a^2 + 2a + 1}$$

17. Write as a common fraction:

.4242.....

18. Simplify:

$\sqrt{12} + \sqrt{27} + \sqrt{48}$

19. What is the sum of .875 and $12\frac{1}{2}$, written as a decimal?

20. 1 scale = 10 smalls

10 smalls = 20 littles

Using the above table, add 4 scale 31 smalls + 2 scale 48 littles?

PLEASE FEEL FREE TO ADD YOUR COMMENTS HERE:

ITEMS

21. What is the exact value of:

$$\frac{(3.3)^2 \times (1.3)^2 \times 12.}{(7.2)^2 \times 50 \times 0.25}$$

22. The average of $10\frac{2}{3}$ and $3\frac{5}{3}$ is?

23. 1 light = 13 rays
    1 ray = 7 bits

    using the above table subtract;

    14 lights 10 rays 1 bit
    5 lights 45 rays 7 bits

24. Reduce to lowest terms:

$$\frac{2x^3 + 20x^2 + 50x}{4x^3 - 100x}$$

25. $\frac{1}{8}$ as a decimal

26. What number multiplied by 273 will make 95,277?

27. 19 is what % of 15%

28. $\sqrt{130.304}$ = ?

29. What figure would be formed at the intersection of two spheres?

30. $\frac{13}{20} \div 10 =$

31. 150 is (?) of 250?

COMMENTS

ITEM	COMMENTS
32. .00% + 1 = what decimal?	
33. 1.6 x 1.343 =	
34. .00 $\sqrt{1074}$ = ?	
35. The value of $3(\cos 45^\circ + i \sin 45^\circ) =$	
36. If ${}_mP_4 = 30 \cdot {}_mC_2$, m= ?	
37. In how many ways can 4 men and 4 women be seated at a round table if each woman is to between two men?	
38. What must be the value of b in order that a graph of the function $y = x^2 - bx + 9$ will be tangent to the x axis?	
39. How many three digit numbers can be formed from the digits 3, 4, 5, 6, 7, if no digit is repeated?	
40. Find the equation whose roots are twice those of $2x^3 - x + 3 = 0$.	
41. There are 38 children in a class. Twenty one are studying French, twenty four are studying Spanish, and of these, twelve are studying both French and Spanish. How many children in the class are not studying either or both foreign languages?	
42. From a group of 5 boys and girls on a school committee of three chosen by lot: What is the probability that three will be a majority of boys on the committee.	

ITEMS

COMMENTS

42. How many numbers between 3000 and 5000 can be formed by using the digits 0, 1, 2, 3, 4, 5, 6, if no repetitions are allowed?

44. Solve:

$$\frac{4 - x}{\sqrt{x^2 - 8x + 32}} = \frac{3}{5}$$

45. Solve completely:

$$4x^4 - 8x^3 - 5x^2 + 1 = 0$$

43. Using Newton's Method of approximate solutions, find a root of the equation $x^3 - 4x - 12 = 0$ to two decimal places.

47. Tell whether the sentence expresses a true or false statement:

$$0 \in \{x \mid x + 1 = 3\}$$

46. Mr. George, a farmer, plowed 19 acres on Monday. By Saturday night he had plowed more than 85 acres in all. What is the least number of acres he could have plowed after Monday?

49. Describe the interval: (open, closed, or half-open)

$$m \mid .3 \leq m \leq 4.8$$

50. A section of pipe 8 ft. 4 in. long has an external radius of 2 in. and an internal radius of 1 in. What is the volume of metal used to make the pipe?

51. Betty gained 7 pounds after she recovered from an illness. She now weighs more than 85 pounds. What is the least number of pounds she weighed before her illness.

PLEASE FEEL FREE TO MAKE ANY ADDITIONAL COMMENTS ON THIS PAGE.

THANK YOU AGAIN FOR YOUR INTEREST AND COOPERATION.

APPENDIX . B

BRITISH-AMERICAN SECONDARY
COMPARATIVE EDUCATION PROJECT

Profile of Headmasters or Principals
Based on Interview

I. Academic ability is largely:

Inborn		A Phenotype		A result of environment

Comments:

II. The best society is one that is organized as a:

Hereditary Aristocracy		Meritocracy		Participatory Democracy		Egalitarian Democracy		Welfare State

Comments:

III. The responsibility of the school to the student is discharged by:

Cultivation of the intellect		Cultivation of character		Cultivation of "the whole child"

Comments:

IV. The responsibility of the school to society is discharged by developing:

Educated Individuals		Participating Citizens		A good Society

Comments:

V. Because of the nature of education the school should promote:

Mental Discipline		Creativity and Problem Solving		Specific Training

Comments:

VI. The Headmaster or Principal should provide leadership that is:

Autocratic — Democratic — Laissez-faire

Comments:

VII. The Headmaster's or Principal's leadership should be based on preparation that is largely and primarily:

Academic — Professional — Experience in "How to win friends and influence people"

Comments:

APPENDIX C

SCHOOL DATA GATHERING FORMS

Form 1
Form 2

Form 1

ILLINOIS UNIVERSITY -
DECATUR-MACKINAW REGIONAL SCHOOL SURVEY

HIGH SCHOOL DATA

I. Pupil Population

A. Enrollment over the past five years:

	1967	1966	1965	1964	1963
1. Total					
2. Boys					
3. Girls					

B. Rate of movement over the past five years: (in percentages)

	1967	1966	1965	1964	1963
1. Transfers a. Into School b. Out					
2. Dropouts					
3. Approximate percent of pupils entering your school which graduate: ___					

C. What percentage of the pupils in this school fall into the following ability ranges?

1. Superior
2. High Average
3. Average
4. Low Average
5. Low

D. Educational goals of pupils during the last five years

1. Approximately what percent of your graduating class:

a. Enters college ___
b. Enrolls in some other form of post-high school educational program ___

E. Occupational goals of pupils during last five years

1. What percentage of the pupils go into:

a. Industry
b. Service positions
c. Clerical positions
d. Unskilled manual labor positions
e. Professional
f. Semi-professional

2. If you anticipate any changes for the future as far as directions pupils will take occupationally or vocationally, please indicate.

II. Teacher-Staff Population

A. Total number of teaching staff

1. Full-time
2. Part-time

B. Total number of administrative staff members

C. Total number of teaching staff by subject-matter areas:

1. English _____
2. Maths _____
3. Science _____
4. Vocational _____
5. Art _____
6. Music _____
7. Commercial _____
8. Language _____
9. Social Studies _____
10. Physical Education _____

III. Programs or curriculums available to pupils in your school:

A. College Prep _____
B. General _____
C. Commercial or business _____
D. Vocational _____
E. Technical _____
F. Other (name) _____

IV. School Administrative Organization

A. Time school begins each day

B. Time alloted for lunch

C. School closing time each day

D. Periods per week devoted to:

		English	Math	Science
7th	First Year			
8th	Second Year			
9th	Third Year			
10th	Fourth Year			
11th	Fifth Year			
12th	Sixth Year			

E. If the time schedule for all other course offerings differs, in what significant ways does it differ?

F. Grade-Pupils Daily in Subject-matter areas (average)

	7th	8th	9th	10th	11th	12th
English						
Math.						
Science						

G. If the pupils are grouped according to ability level within the classroom, please indicate evidence for each of the following areas:

English

Math

Science

ADMINISTRATOR CONTINUED:

HEAD OF SCHOOL _____

DISTRICT _____

Form 2

School Data Form

School: _____

1967-68 academic year begins (date) _____

ends _____

Our current enrollment by grades is:

7	_____
8	_____
9	_____
10	_____
11	_____
12	_____
Total	_____

Standardized tests used:	Grade level at which administered:
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Please attach class schedule for current semester.

APPENDIX D

CLASSROOM CHARACTERISTIC INDEX

Identifying Information

Course title: _____ Grade level: _____

School: _____ Country: _____

Instructor's name: _____ Code #: _____

Name of reporter: _____ Date: _____

Directions

Ten dominant features of the classroom are listed for rating on a 5 point scale. Extremes for each rating are indicated. Comments are optional.

---

1. Instructional approach:

1	2	3	4	5

(Directive) (Non-directive)

Comments:

---

2. Pupil involvement:

1	2	3	4	5

(Spectator) (Participation)

Comments:

---

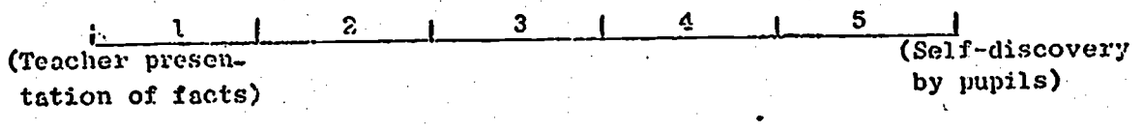
3. Planning for pupil learning:

1	2	3	4	5

(Pupils who are able move from a predestined beginning to a predestined ending) (Pupils moved from where they are to where instructor believes they can go)

Comments:

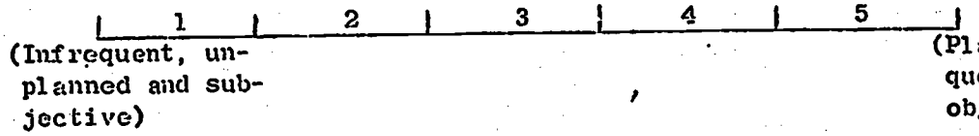
4. Teacher presentation:



Comments:

---

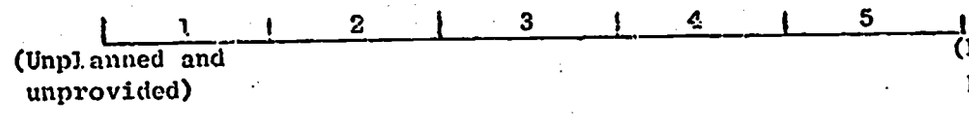
5. Pupil evaluation:



Comments:

---

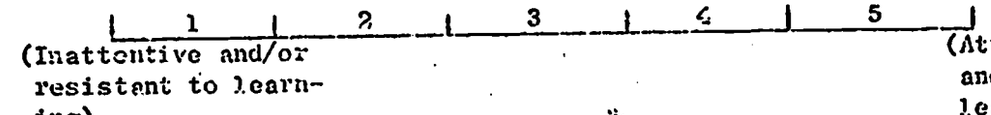
6. Feedback and remedial action:



Comments:

---

7. Pupil motivation: (intent to learn)



Comments:

8. Teacher motivation: (intent to teach)

1 | 2 | 3 | 4 | 5

(Apathy and stagnation) (Enthusiasm and effort to teach)

Comments:

9. Classroom management:

1 | 2 | 3 | 4 | 5

(Authoritarian) (Permissive)

Comments:

10. Classroom atmosphere:

1 | 2 | 3 | 4 | 5

(Repressive) (Stimulating)

Comments:

Dates of Observations: _____ Period of Time (total)_____

_____

Observed by: _____

Name _____ Code # _____

School _____

Date _____

ATTACHMENT I

METHODOLOGY ANALYSIS SCALE

DIRECTIONS: Please indicate the approximate percent of classroom instructional time in which you utilize the following methods. In the blanks provided, (numbers 11 - 15), list any other methods you employ not previously listed. If you have any questions or need clarification, please do not hesitate to ask _____ of the project staff.

_____

_____

Course title: _____ Grade level: _____

Length of Course (in weeks) _____ Length of Class period

_____ Number of days per week class meets _____.

_____

_____

Method	Approximate percent of instructional time you use this method in this course
1. Lecture	_____
2. Drill	_____
3. Class discussion	_____
4. Small group activities	_____
5. Supervised within class study	_____
6. Library study	_____
7. Individual projects	_____
8. Group projects	_____
9. Field trips	_____
10. Examinations	_____
Other Methods	
11. _____	_____
12. _____	_____
13. _____	_____
14. _____	_____
15. _____	_____

YOU ARE NOW READY FOR QUESTION 8 AND RWO 8 ON THE ANSWER SHEET

8. My place of birth

(0) England
(1) Northern Ireland
(2) Scotland
(3) United States
(4) Republic of Ireland
(5) Poland
(6) Germany
(7) Italy
(8) India
(9) Other _____
Please specify

9. Father's place of birth

(0) England
(1) Northern Ireland
(2) Scotland
(3) United States
(4) Republic of Ireland
(5) Poland
(6) Germany
(7) Italy
(8) India
(9) Other _____
Please specify

10. Is your father employed now?

(0) Yes
(1) No

11. Mother's place of birth

(0) England
(1) Northern Ireland
(2) Scotland
(3) United States
(4) Republic of Ireland
(5) Poland
(6) Germany
(7) Italy
(8) India
(9) Other _____
Please specify

12. Language spoken most often at home

(0) English
(1) French
(2) Spanish
(3) German
(4) Polish
(5) Hungarian
(6) Japanese
(7) Gaelic
(8) Italian
(9) Other _____
Please specify

13. Present Form in School

(0) First Form
(1) Second Form
(2) Third Form
(3) Fourth Form
(4) Fifth Form
(5) Sixth Form
(6) Other _____
Please specify

ATTENTION ALL PUPILS: Check to be certain you have been doing the following:
1. Shading in the best answer on the special answer sheet.
2. Making heavy black marks in the space provided on the answer sheet.

If you have done all of the above, you are ready to continue marking on the special answer sheet. If there are any questions, raise your hand and the classroom visitor will assist you.

14. How old will you be on your next birthday?

(0) eleven
(1) twelve
(2) thirteen
(3) fourteen
(4) fifteen
(5) sixteen
(6) seventeen
(7) eighteen
(8) nineteen
(9) twenty

15. Your age when you first started to school

(0) four
(1) five
(2) six
(3) seven
(4) eight

16. Did you attend nursery school and/or infant school

(0) Yes
(1) No

17. Total number of years you have been in school

(0) six years
(1) seven years
(2) eight years
(3) nine years
(4) ten years
(5) eleven years
(6) twelve years
(7) thirteen years
(8) fourteen years

18. What is the total number of schools you have attended, <u>including</u> your present school.

(0) one school
(1) two schools
(2) three schools
(3) four schools
(4) five schools
(5) six schools
(6) seven schools
(7) eight schools
(8) nine schools
(9) ten or more schools

19. Of all the children in your family <u>were you</u>

(0) First born
(1) Last born
(2) Neither the first nor the last born

20. How many children are in your family <u>including</u> yourself?

(0) One child family
(1) Two children
(2) Three children
(3) Four children
(4) Five children
(5) Six children
(6) Seven children
(7) Eight children
(8) Nine children
(9) Ten or more children

21. and 22. Enter the exact number of years you have lived in this town in the appropriate columns in questions twenty-one and twenty-two.
<u>For example</u>, if you have lived in this town 13 years, your answer would look like this

	0	1	2	3	4	5	6	7	8	9
21.	...	▒	...	...	...	...	...	...	...	...
	0	1	2	3	4	5	6	7	8	9
22.	...	...	...	▒	...	...	...	...	...	...

BE SURE THAT YOU HAVE FILLED IN JUST ONE SPACE FOR EACH ANSWER NUMBER

23. and 24. Enter the exact number of years you have lived at your present address. (Do this one as you did the one above)
<u>For example</u>, if you have lived at your present address ten years, your answer would look like this

	0	1	2	3	4	5	6	7	8	9
23.	...	▒	...	...	...	...	...	...	...	...

	0	1	2	3	4	5	6	7	8	9
24.	...	...	...	...	...	...	...	...	...	...

25. Mark the <u>one best</u> answer indicating the highest level of education your father reached

(0) None, or some elementary or primary school
(1) Completed elementary or primary school
(2) Some secondary school, but did not complete the course
(3) Completed secondary school
(4) Technical or commercial school after secondary school
(5) Completed at least, but no more than, two years of college or university
(6) Completed a four year college or university program
(7) Obtained an advanced degree as a result of graduate study or research

26. Mark the <u>one best</u> answer indicating the highest level of education your mother reached.

(0) None, or some elementary or primary school
(1) Completed elementary or primary school
(2) Some secondary school, but did not complete the course
(3) Completed secondary school
(4) Technical or commercial school after secondary school
(5) Completed at least, but no more than, two years of college or university
(6) Completed a four year college or university program
(7) Obtained an advanced degree as a result of graduate study or research

27. How many more years of education do you think you <u>actually</u> will complete?

(0) one year or less
(1) two years
(2) three years
(3) four years
(4) five years
(5) six years
(6) seven years
(7) eight years
(8) nine years
(9) ten or more years

28. How many more years of education would you <u>really like</u> to complete?

(0) one year or less
(1) two years
(2) three years
(3) four years
(4) five years
(5) six years
(6) seven years
(7) eight years
(8) nine years
(9) ten or more years

29. How many more years of education do you think your parents actually want you to complete?

(0) One year or less
(1) two years
(2) three years
(3) four years
(4) five years
(5) six years
(6) seven years
(7) eight years
(8) nine years
(9) ten or more years

30. When you leave secondary school, what do you actually think you will do?

(0) Full-time employment
(1) Technical or commercial college, part-time and work part-time
(2) Technical or commercial college, full-time
(3) University or college, part-time and work part-time
(4) University or college, full-time
(5) Other _____
Please specify

31. When you leave secondary school, what would you really like to do?

(0) Full-time employment
(1) Technical or commercial college, part-time and work part-time
(2) Technical or commercial college, full-time
(3) University or college, part-time and work part-time
(4) University or college, full-time
(5) Other _____
Please specify

32. When you leave secondary school, what do you think your parents actually want you to do?

(0) Full-time employment
(1) Technical or commercial college, part-time and work part-time
(2) Technical or commercial college, full-time
(3) University or College, part-time and work part-time
(4) University or college, full-time
(5) Other _____
Please specify

33. When you leave secondary school, what do you think your parents would really like to see you do?

(0) Full-time employment
(1) Technical or commercial college, part-time and work part-time
(2) Technical or commercial college, full-time
(3) University or college, part-time and work part-time
(4) University or college, full-time
(5) Other _____
Please specify

34. Is your present school course best described as:

(0) Academic (English, maths., science, language, etc.)
(1) Business or commercial
(2) Vocational or technical
(3) General (a combination of the above)

35. How definite is your present choice of a job or occupation?

(0) Completely definite
(1) Very definite
(2) Fairly definite
(3) Fairly indefinite
(4) Completely indefinite

36. How many different jobs or occupations have you seriously considered entering?

(0) None
(1) One
(2) Two
(3) Three
(4) Four or more

37. Who has encouraged you the most to achieve a certain job or occupation?

(0) Mother
(1) Father
(2) Both father and mother
(3) Teacher
(4) Career teacher
(5) Relative
(6) Fellow pupil or friend

38. Is your Mother presently working?

(0) No
(1) Yes, part-time
(2) Yes, full-time

The following are leisure-time activities in which you may engage both inside and outside of school. Mark each one that applies to you. Yes indicates that you participate.

39. Clubs or organizations

(0) Yes
(1) No

40. Sports

(0) Yes
(1) No

41. Reading

(0) Yes
(1) No

42. Dancing

(0) Yes
(1) No

43. Television

(0) Yes
(1) No

44. Dramatics

(0) Yes
(1) No

45. Music

(0) Yes
(1) No

46. Horse Back Riding

(0) Yes
(1) No

47. Others _____
Please specify

48. Which one of the following is most important for you at school?

(0) Pleasing your parents
(1) Learning as much as possible at school
(2) Living up to religious or ethical ideals
(3) Being accepted and liked by other students

49. Which one of the following is most important for other pupils at this school?

(0) Pleasing their parents
(1) Learning as much as possible at school
(2) Living up to religious or ethical standards
(3) Being accepted and liked by other students

50. How close do you feel to this community?

(0) I feel that I belong here and that this is my home
(1) I feel quite close to this community, but I do not consider it my home
(2) I do not feel very close to this community

51. How does your family fit into this community?

(0) Among those who make the important decisions for the community
(1) Active in the community, but not decision makers
(2) Just ordinary community members
(3) Not really part of this community at all.

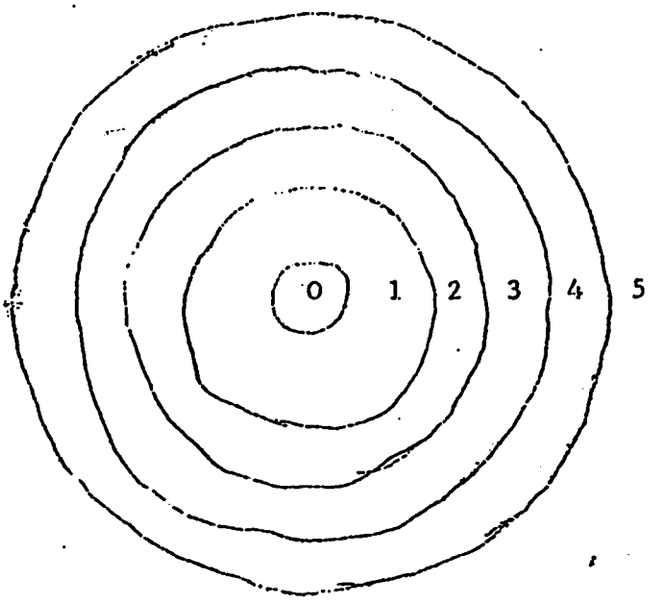
52. If you had a chance for two jobs after you finished school, one in this town and one in a larger city, which one would you take?

(0) the job in this town
(1) the job in the larger city

53. Thinking realistically, do you think you will probably live in this town when you are out of school and have a job and/or settled down and married?

(0) Definitely yes
(1) Probably yes
(2) Don't know
(3) Probably no
(4) Definitely no

54. Suppose that the circles below represented the activities that go on here at school. How far from the center of things are you? Fill in the appropriate number on your answer sheet.



55. Suppose that you had an opportunity to join a group that you had always hoped to join, but then you found some disapproval of your joining. Whose approval would be most difficult to accept. Mark only <u>one</u> of the following.

(0) Your parents
(1) Your teachers
(2) Your friends

56. Which <u>one</u> of the following is <u>most</u> important for a boy to be admired by the pupils of this school?

(0) Coming from the right family
(1) Having high grades, a good student
(2) Being an athletic star
(3) Being in the "right" crowd, the leading boys
(4) Having nice clothes or a nice car
(5) Being a leader in school activities
(6) Being popular with girls

57. Which <u>one</u> of the following is <u>least</u> important for a boy to be admired by the pupils of this school?

(0) Coming from the right family
(1) Having high grades, a good student
(2) Being an athletic star
(3) Being in the "right" crowd, the leading boys
(4) Having nice clothes or a nice car
(5) Being a leader in school activities
(6) Being popular with girls

58. Which one of the following is most important for a girl to be admired by the pupils at this school?

(0) Coming from the right family
(1) Having high grades, a good student
(2) Being an athlete
(3) Being in the "right" crowd, the leading girls
(4) Having nice clothes or a nice car
(5) Being a leader in school activities
(6) Being popular with boys
(7) Being good-looking, pretty

59. Which one of the following is least important for a girl to be admired by the pupils at this school?

(0) Coming from the right family
(1) Having high grades, a good student
(2) Being an athlete
(3) Being in the "right" crowd, the leading girls
(4) Having nice clothes or a nice car
(5) Being a leader in school activities
(6) Being popular with boys
(7) Being good-looking, pretty

60. Are you a full-time student

(0) Yes
(1) No

61. TO BE ANSWERED BY GIRLS ONLY:

When do you plan to work?

(0) Before marriage
(1) After marriage
(2) After children are grown
(3) All of the above

When you are finished, look over the answer sheet to make sure you have not left out any questions. Look to see if you marked carefully just inside the dotted lines.

YOUR HELP IN COMPLETING THIS SPECIAL STUDY IS GREATLY APPRECIATED. THANK YOU!

APPENDIX B

INDIANA UNIVERSITY

Administrator Questionnaire

UNITED STATES

Name _____ SCHOOL _____

Code Number _____

Directions: Please encircle the number of the response which is most appropriate for you.

1. Age

(0) 24-29
(1) 30-39
(2) 40-49
(3) 50-59
(4) 60+

2. Years you have served as a full-time teacher

(0) one to five
(1) six to ten
(2) eleven to fifteen
(3) sixteen to twenty
(4) twenty-one to twenty-five
(5) more than 25

3. Assignment immediately prior to assuming present position

(0) Principal in another secondary school
(1) Principal of an elementary school
(2) Assistant Principal
(3) Head of a department
(4) Teacher with some administrative duties other than as departmental chairman
(5) Full-time teacher
(6) Other

4. Years service in position indicated in above (question 3)

(0) one to five years
(1) six to ten years
(2) eleven to fifteen years
(3) sixteen to twenty years
(4) twenty-one to twenty-five years
(5) more than 25 years

5. Years service in present position

(0) one to five years
(1) six to ten years
(2) eleven to fifteen years
(3) sixteen to twenty years
(4) twenty-one to twenty-five years
(5) more than 25 years

6. Number of years of college and/or university training completed following completion of secondary school

(0) one year
(1) two years
(2) three years
(3) four years
(4) five years
(5) more than five years

7. Check the appropriate response indicating degree or degrees earned

(0) Bachelors
(1) Masters
(2) Doctorate
(3) Bachelors and Masters
(4) Bachelors and Doctorate
(5) Bachelors, Masters, and Doctorate
(6) Other

8. When was your most recent degree obtained?

(0) 1965 or later
(1) 1960-64
(2) 1955-59
(3) 1950-54
(4) 1940-49
(5) 1930-39
(6) Before 1930

9. Major field of preparation for teaching

(0) Mathematics
(1) Science
(2) English
(3) Social studies (history, government, geography, etc.)
(4) Foreign language
(5) Music or art
(6) Business education
(7) Physical education
(8) Other

10. Specific college or university courses taken in the field of administration and supervision

(0) Administration of the secondary school
(1) Supervision
(2) Curriculum
(3) Educational psychology
(4) Evaluation, measurement, statistics, or educational research
(5) History and philosophy of education
(6) Other

11. Do you live in the community where the school is located?

(0) Yes
(1) No

12. How many conferences, seminars, professional meetings (include college and university courses, lectures, etc.) specifically pertaining to your role as an administrator have you attended during the last year?

(0) None
(1) One to five
(2) Six to ten
(3) Eleven to fifteen
(4) Sixteen to twenty
(5) More than 20

13. Indicate the number of memberships you hold in academic and/or professional associations

(0) Belong to none
(1) One to two
(2) Three to five
(3) More than five

14. Number of books you have read during the past year which relate directly to the field of education

(0) None
(1) One to three
(2) Four to six
(3) Seven to nine
(4) More than 10

15. Number of books you have read outside the field of education during the past year

(0) None
(1) One to three
(2) Four to six
(3) Seven to nine
(4) More than ten

16. Number of periodicals to which you subscribe relating to the field of education

(0) None
(1) One to three
(2) Four to six
(3) Seven to nine
(4) More than ten

Please read questions 17 through 29 carefully before responding. In these questions various duties or tasks of the administrator are listed. Please estimate the hours per week you devote to each of these areas.

17. Classroom Teaching

(0) Less than an hour per week
(1) One to three hours per week
(2) Four to six hours
(3) Seven to nine hours
(4) Ten to twelve hours
(5) Thirteen to fifteen hours
(6) Sixteen to eighteen hours
(7) Nineteen to twenty-one hours
(8) More than twenty-one hours

18. Office and Administrative Routine

(0) Less than an hour per week
(1) One to three hours
(2) Four to six hours
(3) Seven to nine hours
(4) Ten to twelve hours
(5) Thirteen to fifteen hours
(6) Sixteen to eighteen hours
(7) Nineteen to twenty-one hours
(8) More than twenty-one hours

19. Classroom visitation and supervision of instruction

(0) Less than an hour per week
(1) One to three hours per week
(2) Four to six hours
(3) Seven to nine hours
(4) Ten to twelve hours
(5) Thirteen to fifteen hours
(6) Sixteen to eighteen hours
(7) Nineteen to twenty-one hours
(8) More than twenty-one hours

20. Contacts with pupils (interviews, discipline, counseling, advising, etc.)

(0) Less than an hour per week
(1) One to three hours
(2) Four to six hours
(3) Seven to nine hours
(4) Ten to twelve hours
(5) Thirteen to fifteen hours
(6) Sixteen to eighteen hours
(7) Nineteen to twenty-one hours
(8) More than twenty-one hours

21. Staff or faculty meetings and consultation with teachers individually or in small groups

(0) Less than an hour per week
(1) One to three hours
(2) Four to six hours
(3) More than six hours

22. Development and revision of the class schedule

(0) Less than an hour per week
(1) One to three hours
(2) Four to six hours
(3) Seven to nine hours
(4) More than nine hours

23. Attendance at assemblies

(0) Less than an hour per week
(1) One to three hours
(2) Four to six hours
(3) More than six hours

24. Meeting with consultants, visitors, parents, etc.

(0) Less than one hour per week
(1) One to three hours
(2) Four to six hours
(3) Seven to nine hours
(4) More than nine hours

25. Administrative demands related to school meals, transportation and building maintenance

(0) Less than one hour per week
(1) One to three hours
(2) Four to six hours
(3) Seven to nine hours
(4) Ten to twelve hours
(5) More than twelve

26. Attendance at meetings of parent groups, community organizations, etc. which relate to the program and activities of the school during the past year.

(0) None
(1) One to five hours
(2) Six to ten hours
(3) Eleven to fifteen hours
(4) Sixteen to twenty hours
(5) Twenty-one to twenty-five hours
(6) More than twenty-five hours

27. Conference and meeting attendance related to activities of the school

(0) Less than an hour per week
(1) One to three hours
(2) Four to six hours
(3) Seven to nine hours
(4) Ten to twelve hours
(5) More than twelve hours

28. Time you spend in planning (apart from administrative duties or management of details)

(0) Less than an hour per week
(1) One to three hours
(2) Four to six hours
(3) Seven to nine hours
(4) Ten to twelve hours
(5) More than twelve

29. Recruitment and orientation of staff (e.g., to cover absenteeism, change in assignments, etc.)

(0) Less than an hour per week
(1) One to three hours
(2) Four to six hours
(3) More than six hours

30. Check the professional assistance you utilize in administering the school program

(0) Full-time assistant or deputy
(1) Part-time assistant or deputy
(2) Released time for departmental chairmen
(3) Guidance or careers director with released time
(4) Other

31. What secretarial and/or clerical assistance do you have?

(0) Part-time secretary
(1) Full-time person
(2) More than one full-time and less than two
(3) Two full-time persons
(4) More than two and less than three
(5) Three full-time persons
(6) More than three full-time persons

32. Number of weeks during calendar year you are under contract

(0) Thirty to thirty-three weeks
(1) 34-37 weeks
(2) 38-41 weeks
(3) 42-45 weeks
(4) 46-49 weeks
(5) 50-52 weeks

33. Please circle the relative importance of various ways in which you assess the success of your school program.

	Very Important ——→				Of little importance
Examination Results	1	2	3	4	5
Responses from parents and patrons	1	2	3	4	5
Responses from present and former pupils	1	2	3	4	5
College or university success	1	2	3	4	5
Adjustment into the world of work	1	2	3	4	5
Systematic follow-up of students after leaving school	1	2	3	4	5
Periodic evaluation by staff	1	2	3	4	5
Reports of advisors, inspectors and outside experts	1	2	3	4	5
Youth organizations	1	2	3	4	5
Youth Employment officer	1	2	3	4	5
Social welfare worker	1	2	3	4	5
Probation officer	1	2	3	4	5
Educational welfare officer	1	2	3	4	5
Others: (Please list)					
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5

APPENDIX H

INDIANA UNIVERSITY

TEACHER QUESTIONNAIRE

UNITED STATES SCHOOLS

You should have a questionnaire, a special answer sheet and a pencil. You are to read the question and select the response which applies to you. In the answer spaces for questions one, two, three, four and five you will enter your identification number as was explained to you.

Begin with question number SIX below.

6. Sex

(0) Male
(1) Female

Look at the answer sheet and find the row marked 6. With your pencil, make a heavy black mark inside the space which matches the number which suits you. If you are male, you should have marked the answer sheet like this:

	0	1	2	3	4	5	6	7	8	9
6.	■									

7. and 8. Enter your exact number of years in the appropriate columns in questions seven and eight.

For example, if you are 54 years of age your answer would look like this:

	0	1	2	3	4	5	6	7	8	9
7.						■				

	0	1	2	3	4	5	6	7	8	9
8.					■					

BE SURE THAT YOU HAVE FILLED IN JUST ONE SPACE FOR EACH ANSWER NUMBER.

If you make a mistake, it is important that you erase carefully and thoroughly. Make sure that you stay inside the dotted lines.

Do not bend, curl, or make any stray marks on the answer sheets.

Be sure to blacken the space on the answer sheet which matches your response on this questionnaire.

Please feel free to ask questions if you are in doubt regarding your responses.

PLEASE TURN THE PAGE FOR QUESTION NUMBER 9.

BE SURE YOU WORK ACROSS THE ANSWER SHEET FROM LEFT TO RIGHT.

9. Type of school in which you are currently teaching:

(0) Junior high school (grades 7, 8, 9)
(1) Junior high school (grades 7, 8)
(2) Senior high school (grades 10, 11, 12)
(3) Senior high school (grades 9, 10, 11, 12)
(4) Junior-senior high school (grades 7 - 12)

10. Subject-matter you are currently teaching:

(0) English
(1) Reading
(2) English, including reading
(3) Mathematical subjects
(4) Science subjects
(5) Science and math subjects
(6) Other

11. Grade levels of pupils in your classes:

(0) 7th
(1) 8th
(2) 9th
(3) Two or more grades 7 through 9
(4) 10th
(5) 11th
(6) 12th
(7) Two or more grades 10 through 12
(8) Two or more grades 9 through 12
(9) Two or more grades 7 through 12

12. Length of training in years (post high school)

(0) one
(1) two
(2) three
(3) four
(4) five
(5) six
(6) seven
(7) more than seven

13. Indicate degrees earned

(0) None
(1) Two-year training certificate
(2) Bachelor's
(3) Two-year training certificate and Bachelor's
(4) Master's
(5) Education Specialists
(6) Doctorate
(7) Bachelor's and Master's
(8) Bachelors, Master's and Doctorate
(9) Other

14. Indicate the type of institution from which your first degree was obtained:

(0) Junior College
(1) Technical Institute
(2) Liberal Arts College
(3) Teacher-Training College
(4) University
(5) Other

15. Indicate the type of institution from which your second degree was obtained:

(0) Technical Institute
(1) Liberal Arts College
(2) Teacher Training College
(3) University
(4) Does not apply

16. Indicate the type of institution from which your third degree was earned:

(0) Technical Institute
(1) Liberal Arts College
(2) Teacher Training College
(3) University
(4) Does not apply

17. Professional Training received in preparation for teaching at which level:

(0) Elementary
(1) Junior high
(2) Secondary
(3) Elementary and Secondary
(4) Elementary and Junior high
(5) Junior high - Secondary
(6) College

18, 19, 20, 21. Indicate the exact year in which your first degree was obtained (as you did for your age). Be sure that you enter just one for each question number.

For example if your first degree was obtained in 1947, your answer would look like this:

	0	1	2	3	4	5	6	7	8	9
18.	...	...	...	...	...	...	...	...	...	...
	...	(9)	...	...	...	...	...	...	...	...
	0	1	2	3	4	5	6	7	8	9
19.	...	...	...	...	...	...	...	...	...	...
	...	...	...	...	...	...	...	...	...	(9)
	0	1	2	3	4	5	6	7	8	9
20.	...	...	...	...	...	...	...	...	...	...
	...	...	...	...	(9)	...	...	...	...	...
	0	1	2	3	4	5	6	7	8	9
21.	...	...	...	...	...	...	...	...	...	...
	...	...	...	...	...	...	...	(9)	...	...

22, 23, 24, 25. Indicate the exact year in which your second degree was obtained (as you did in questions 16-21 for your first degree). If you have not received a second degree, skip questions 22, 23, 24, 25 and go on to question 26.

26, 27, 28, 29. Indicate the exact year in which your third degree was obtained (as you did in the questions above for your second and first degrees). If you have not received a third degree, skip questions 26, 27, 28, 29 and go on to question 30.

30. What amount of in-service training have you had during the past five years?

(0) No in-service training
(1) Less than one week
(2) 1 - 3 weeks
(3) 3 - 6 weeks
(4) 6 - 12 weeks
(5) 13+ weeks

31. How many lectures or short seminars have you attended during the last two years?

(0) None
(1) 1 - 3
(2) 4 - 6
(3) 7 - 9
(4) 10+

32. If you have a prescribed syllabus, do you feel that it places restrictions on the way in which you teach?

(0) Yes
(1) No
(2) Does not apply

33. If you have required textbooks, do you feel that they place restrictions on the way in which you teach?

(0) Yes
(1) No
(2) Does not apply

34. If you have to employ set methods of teaching, do you feel that this places any restrictions on the way in which you teach?

(0) Yes
(1) No
(2) Does not apply

35. Do you consider that standardized tests place a restriction on the way in which you teach your subject?

(0) Yes
(1) No
(2) Does not apply

36 and 37. Enter the exact number of years of teaching experience which you have had in the appropriate columns for questions 36 and 37. (As you did for your age and years in which degrees were obtained).

For example, if you have taught for 34 years, your answer would look like this:

	0	1	2	3	4	5	6	7	8	9
36.	...	...	...	■	...	...	...	...	...	...
37.	...	...	...	...	■	...	...	...	...	...

BE SURE THAT YOU HAVE FILLED IN JUST ONE SPACE FOR EACH QUESTION NUMBER.

38. Do you live in the community where this school is located?

(0) Yes
(1) No

39. How many community organizations, such as clubs, associations, or church sponsored groups (but not to include church congregations) do you belong to in this town?

(0) None
(1) One
(2) Two
(3) Three or more

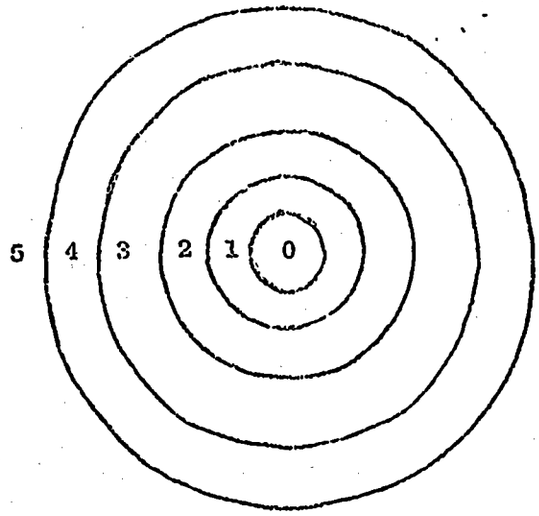
40. How important would you say education is in comparison with other activities in this community?

(0) More important than most other activities
(1) About as important as other activities
(2) Less important than other activities

41. Which <u>one</u> of the following seems to be <u>most</u> important for the pupils in this school?

(0) Pleasing their parents
(1) Learning as much as possible in school
(2) Living up to religious principles and ideals
(3) Being accepted and liked by other pupils

42. Suppose the circles below represent the activities that go on in this community. How far out from the center are you? Fill in the appropriate number on your answer sheet.



43. Generally, how do teachers fit into this community?

(0) Among those who make important decisions for the community
(1) Active, but not decision makers
(2) Ordinary members of the community
(3) Not really part of the community at all.

44. How do you feel about this community?

(0) I feel that I belong to this community and it is my home
(1) I feel quite close to this community but I do not consider it my home
(2) I do not feel very close to this community.

45. Which one of the following seems most important if a boy is to be admired by the pupils at this school?

(0) Coming from the right family background
(1) Having high grades, a good student
(2) Being an outstanding athlete
(3) Being in the "right" crowd, the leading clique
(4) Being popular with girls
(5) Having nice clothes or a nice car
(6) Being a leader in school activities

46. Which one of the following seems least important if a boy is to be admired by the pupils at this school?

(0) Coming from the right family background
(1) Having high grades, a good student
(2) Being an outstanding athlete
(3) Being in the "right" crowd, the leading clique
(4) Being popular with girls
(5) Having nice clothes or a nice car
(6) Being a leader in school activities

47. Which one of the following seems most important if a girl is to be admired by the pupils at this school?

(0) Coming from the right family background
(1) Having high grades, a good student
(2) Being an outstanding athlete
(3) Being in the "right" crowd
(4) Being popular with boys
(5) Having nice clothes or a nice car
(6) Being a leader in school activities
(7) Being physically attractive

48. Which one of the following seems least important if a girl is to be admired by the pupils at this school?

(0) Coming from the right family background
(1) Having high grades, a good student
(2) Being an outstanding athlete
(3) Being in the "right" crowd, the leading clique
(4) Being popular with boys
(5) Having nice clothes or a nice car
(6) Being a leader in school activities
(7) Being physically attractive

Please be sure that you have worked across the answer sheet from left to right.

Please check to see that you have filled in just one response for each question.

If you have erased, please be sure that your erasures are clean and complete.

Your answers should fill in only the spaces between the dots.

YOUR COOPERATION IN THIS STUDY IS GREATLY APPRECIATED. THANK YOU VERY MUCH.

APPENDIX I

BRITISH ISLES

1. Name _____

2. Age 18-23 _____ 24-29 _____ 30-39 _____ 40-49 _____

50-59 _____ 60+ _____

3. Sex Male _____ Female _____

4. Length of training:
Describe total professional training, both practical (e.g., teaching methods class) and academic (e.g., mathematics) which you received in preparation for your present assignment.

a. Length of training in years

1 _____
2 _____
3 _____
4 _____
5 or more _____

5. In what type of higher educational institution did you receive your professional training?

University _____
Teacher training college or seminar _____
University and teacher training college _____

Other _____
None _____

6. In what type of higher educational institution did you receive your subject matter training?

University _____
Teacher training college or seminar _____
University and teacher training college _____

Other _____
None _____

7. How many years teaching experience have you had?

Less than 1 year _____
1-2 years _____
3-5 years _____
6-10 years _____
11-15 years _____
16-20 years _____
21-25 years _____
26+ years _____

[illegible]

8. [illegible]

[illegible]

9. How many [illegible] during the past 5 years? [illegible]

0 ____ 1-2 ____ 3-4 ____ 5-6 ____ [illegible] ____

10. Do you consider having [illegible] a restriction on the way in which you teach your subject matter?

Yes ____ No ____ Does not apply ____

11. Does [illegible] place a restriction on the way in which you teach your subject matter?

Yes ____ No ____ Does not apply ____

12. Do you consider that [illegible] method of teaching places a restriction on the way you teach your subject?

Yes ____ No ____ Does not apply ____

13. Do you consider that [illegible] places a restriction on the way in which you teach your subject?

Yes ____ No ____ Does not apply ____

14. How many different occupations have you seriously considered entering?

None ____
One ____
Two ____
Three ____
Four or more ____

[illegible]
[illegible]

35. How important were each of the following to you in your choice of a job?

a. [illegible]
   1) extremely important ____
   2) very important ____
   3) important ____
   4) neither important nor unimportant ____
   5) not at all important ____

b. [illegible]
   1) extremely important ____
   2) very important ____
   3) important ____
   4) neither important nor unimportant ____
   5) not at all important ____

c. [illegible]
   1) extremely important ____
   2) very important ____
   3) important ____
   4) neither important nor unimportant ____
   5) not at all important ____

d. Freedom to make my own decisions
   1) extremely important ____
   2) very important ____
   3) important ____
   4) neither important nor unimportant ____
   5) not at all important ____

e. Opportunity for promotion and advancement in the long run
   1) extremely important ____
   2) very important ____
   3) important ____
   4) neither important nor unimportant ____
   5) not at all important ____

f. Meeting and working with sociable, friendly people
   1) extremely important ____
   2) very important ____
   3) important ____
   4) neither important nor unimportant ____
   5) not at all important ____

36. How important would the following conditions be as influencing you to quit to go to work for another employer?

a. If I could [illegible]
   1) [illegible]
   2) very important ______
   3) [illegible] ______
   4) neither important nor unimportant ______
   5) not at all important ______

b. If [illegible]
   1) extremely important ______
   2) very important ______
   3) important ______
   4) neither important nor unimportant ______
   5) not at all important ______

c. If I could do more important work elsewhere
   1) extremely important ______
   2) very important ______
   3) important ______
   4) neither important nor unimportant ______
   5) not at all important ______

d. If I had a poor supervisor
   1) extremely important ______
   2) very important ______
   3) important ______
   4) neither important nor unimportant ______
   5) not at all important ______

e. If I didn't like my co-workers
   1) extremely important ______
   2) very important ______
   3) important ______
   4) neither important nor unimportant ______
   5) not at all important ______

f. If I did not receive expected promotions or salary increases
   1) extremely important ______
   2) very important ______
   3) important ______
   4) neither important nor unimportant ______
   5) not at all important ______

17. Birth date, place ______________________________

18. Citizenship if non-citizen ______________________________

19. School employed by ______________________________

APPENDIX J SUBJECT MATTER CONTENT FORM

School: _____

Course: _____ Grade Level: _____

Text (S): authors: _____

title: _____

publishing co.: _____

date of publication: _____

Please indicate the major subject matter topics covered in this course and the approximate percent of total time devoted to the topic:

Topic	Percent of course time usually allocated