A STUDY OF THE RELATIONSHIP OF INVOLVEMENT

IN SCHOOL ACTIVITIES TO THE ACADEMIC

ACHIEVEMENT OF JUNIOR

HIGH STUDENTS

By

By

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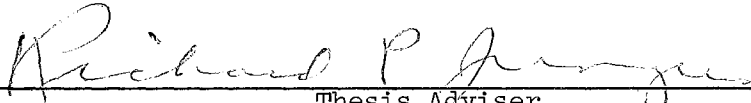Northeastern State College
Tahlequah, Oklahoma
1948

Master of Industrial Education
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Norman, Oklahoma
1951

Submitted to the Faculty of the Graduate School
of the Oklahoma State University
in partial fulfillment of the requirements
for the degree of
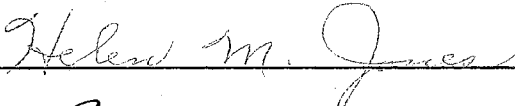DOCTOR OF EDUCATION
May, 1966

A STUDY OF THE RELATIONSHIP OF INVOLVEMENT IN SCHOOL

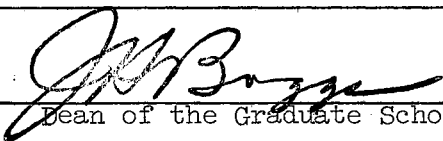ACTIVITIES TO THE ACADEMIC ACHIEVEMENT

OF JUNIOR HIGH STUDENTS

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PREFACE

Although the student activities program of our public school system
has expanded along with the curricular program throughout the years,
public opinion as to the type of program desired in our schools, the
benefits derived by the students, and the value received from such a
program is sharply divided.

There appears to be no doubt that the student activities occupy a
very important place in our schools and yet there is a lack of research
into many aspects of the activities program--particularly in the junior
high school. The purpose of this study is to investigate the difference
in junior high students' academic achievement in relation to the degree
of cumulative involvement in certain types of student activity groups
or clubs of the junior high school for students of different socio-
economic backgrounds.

Indebtedness is acknowledged to Drs. Richard P. Jungers, thesis
adviser, Barry L. Kinsey, Daniel Selakovich, Robert E. Sweitzer and
Mrs. Helen M. Jones for their assistance and guidance in preparation of
this paper. I am deeply grateful to Dr. Victor O. Hornbostel for his
assistance in the establishment of the statistical model and to the
Computing Center at Oklahoma State University for the computational and
statistical services rendered, and to the following for aid in adminis-
tering the student questionnaires and completing activity evaluation
sheets used in this study: Dr. Bill Lillard, Director of Secondary
Education, Oklahoma City Public Schools; Dr. Larry Hayes, Director of

Research, Oklahoma City Public Schools; the junior and senior high school principals, Oklahoma City Public Schools; and to the numerous administrative personnel of the Oklahoma City Public Schools who assisted in collecting data used in this study.

Finally, I wish to give recognition to my wife, Irma Lee, for her understanding and patience throughout the development of this thesis.

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CHAPTER I

INTRODUCTION

Background of the Study

One area of our present school program that frequently receives
criticism both from school personnel and the public is the program of
student activities. Opinion as to the scope of the program desired in
our schools, the benefits derived by the students, and the value
received in terms of the time spent by both the student and the teacher
sponsor is sharply divided.

From the beginning of the junior high school, student activities
have had an important place in the total school program. One of the
conditions which influenced the advancement of the junior high school
after the late 1920's was the concern of many educators that unique
late preadolescent and early adolescent needs and interests were not
adequately met by programs directed primarily to the needs of late
adolescents. Educators have continuously sought effective media
through which student activities could be a meaningful part of the
learning experiences of the late preadolescent and early adolescent
student. (Bossing and Cramer, 1965)

Educational leaders must have a sound basis for every segment of
the total school program. If any part of the curriculum has ceased to
meet the needs of the students, that part of the curriculum should be

examined and changed to better fit the needs of the student. The activity program must also be investigated frequently to determine what effects the program is having on the students involved in the program.

An important question all school personnel should ask is: "What is the activity program of our school contributing to the education of the youth in our schools?" Merely having activities does not guarantee wholesome learning. The activities can create a learning situation for good or for bad. It takes much thought, planning, supervision, and especially evaluation to bring about desirable results. (Rybus, 1964)

Most educational leaders think that the activity program is important as evidenced by the American comprehensive school program. It may even be that the activity program, through proper supervision and evaluation, can be integrated with the academic program to make both experiences more meaningful for the student. (Rybus, 1964)

This is a period of critical analysis in education. Schools have been closely observed for some years and will quite likely continue to be. The school can no longer defend its activity program on the basis that the community likes the program or that the activities help the students "let off steam." (Rybus, 1964) According to Frederick (1959) the student activities have developed to the period of exploitation. It must be remembered that informal student activities are only one part of the totality of the modern educational program, and in justice to the students and to all members of the faculty, no program should be emphasized at the expense of other parts of the educative experience.

Educators must have a sound basis on which to operate the activity program in the school today. Educational leaders of the present and of the future must have conclusive evidence on which to base their decisions

concerning the activity program of the school. Therefore, this writer felt that a study concerning the effect of the participation in student activities on the student's academic achievement is appropriate and necessary to aid educators in the evaluation of the total activities program.

Statement of the Problem

The purpose of this study is to examine the difference in junior high school students' academic achievement in relation to the degree of cumulative involvement in certain types of student activity groups or clubs[1] of the junior high school for students of different socio-economic backgrounds.

The student activities groups or clubs of the junior high school are classified into five categories on the basis of the purpose of the activity. The following categories are used in this study:

Type I is composed of those activity groups or clubs which have as their primary purpose the physical development of the student. This type includes groups or clubs such as interscholastic athletics, intra-mural athletics, bowling clubs, archery clubs, and swimming clubs.

Type II is composed of those activity groups or clubs which have as their primary purpose the intellectual development of the student. This type includes groups or clubs such as science club, German club, and mathematics club.

Type III is composed of those activity groups or clubs which have as their primary purpose the cultural development of the student. This

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[1]For list of activity clubs or groups included see Appendix A.

type includes groups or clubs such as band, choral groups, music club, drama club, speech and debate clubs.

Type IV is composed of those activity groups or clubs which have as their primary purpose direct contribution to the general school organization. This type includes student government, clerical assistants, publication staff, and assembly committees.

Type V is composed of those activity groups and clubs which have as their primary purpose school and community service. This type includes honor societies, Key clubs, Future Homemakers, pep club, Future Teachers, and 4-H club.

For this study three other categories are used to determine participation. These three categories are composed of those students who did not participate in any activity, those who participated in a combination of two types of activities, and those students who participated in three or more types of activities.

Student involvement in the activities was rated by a person in each school knowledgeable of the activities. This person was asked to rate each of the various roles that students occupied in each group or club in terms of the amount of time the students normally devoted to each of these roles. This time rating is on a five point continuum with one as the lowest rating and five as the highest rating.

An individual student's time involvement score for a type of activity is the sum of time ratings assigned each club role in which he indicated he had served in the various activity groups and clubs composing that type of activity during his three years in the junior high school.

Students in this study are classified into two levels representing different socio-economic backgrounds using the occupation and education of the father and mother as a basis of classification. The two levels in this study are based on general classifications by Edwards (1943), Hatt (1950), and Caplow (1954). However, since the classifications do not need to be as exact as the many classifications given by these writers, it was decided that a combination of the many occupations into two general classifications are sufficient for this study. Other factors limiting this classification into two rather broad categories are: (1) The difficulty in securing detailed information pertaining to the economic background of the student. Both time and expense involved prohibited securing this information. (2) Additional socio-economic classes would have created numerous categories in which the student sample would have been too small and therefore the statistical treatment would have been impractical. The two levels are:

Class I is composed of students whose father or mother are the large business owners and managers and the professional and semi-professional people such as doctors, lawyers, engineers, small business owners and managers, white-collar workers, salesmen, and teachers.

Class II is composed of students whose father or mother are the skilled, semi-skilled factory and blue-collar workers, unskilled, hourly or day laborers, servant, relief, and unemployed.

The major questions examined in this study included the following:

1. Is there a direct relationship between student involvement in the student activities in terms of time devoted to all the activities and the academic achievement of the student?

II. Is there a direct relationship between the type of student activities in which a student participates and the academic achievement of the student?

III. Is there a direct relationship between student involvement in the student activities in terms of time devoted to each of the various types of activities and the academic achievement of the student?

IV. Is there a direct relationship between student involvement in the student activities in terms of time devoted to all the activities and the academic achievement of students of certain socio-economic levels?

V. Is there a direct relationship between the type of student activities in which a student participates and the academic achievement of students of certain socio-economic levels?

VI. Is there a direct relationship between student involvement in the student activities in terms of time devoted to the various types of activities and the academic achievement of students of certain socio-economic levels?

Need for the Study

One of the primary concerns of the administrator and of the classroom teacher should be the academic achievement of the pupils. It is essential that any program in the school curriculum contribute to the development of students. One basis for the justification of any program, for example the student activities, would be the contribution of the program to the general educational advancement and specifically to the academic achievement of students.

Tradition, pressure from special interest groups, and the desires of the students themselves too often influence the educator and determine to a large degree the type and extent of the student activity program in the school. The relative high cost, both in terms of money and time spent by students and sponsors in student activities, is a favorite target for criticism from the public. School administrators and teachers attempt to justify this cost of the activities program in terms of benefits to the student, the school, or the community. (Frederick, 1959)

A search of the literature revealed few studies concerning the activity program in the junior high school. Those studies examined were primarily related to the scope, status, and purposes of the activity program in the junior high school and did not evaluate the effects of the program on the students. In none of the studies examined were the various types of student activities evaluated to determine if a particular type of activity had more effect on the academic achievement of students than other types of activities might have. Also, there were no studies found that examined the effects that participation in student activities may have on students of various socio-economic backgrounds.

Since our modern school administrators too often have no evidence on which to base their decisions concerning student activities, it is felt that a study of the effects of participation in the activities of our modern schools on the academic achievement of the junior high school student is needed in order to give educators some basis for administering the activity program of the school. The immediate value of this study is the examination of only one basis for the justification of activity programs, that of the contribution to the academic development

of students. Other benefits of the student activities program were not examined.

This study, although limited to the effects of involvement on academic achievement, should provide one basis for the retention or creation of various activities offered by the school. Further, it should provide educators with insights for the guidance of students of different socio-economic backgrounds into various types of activities.

This study should also provide educators with information relative to the effects of the degree of involvement in these activities to students' academic achievement; thus, limitations on or encouragement of student involvement in these activities can be more realistically established.

Definitions and Interpretations

The term student activities as used in this study will mean any school activities voluntarily engaged in by students which have the approval of and are sponsored by the faculty and which do not carry credit toward promotion or graduation. All activities regardless of the meeting time or place that are sponsored and supervised in any way by the school are called student activities.

Summary

The activity program of our modern school has been sharply criticized for the apparent lack of planning, control, and evaluation by educational leaders. The program in the high school has been influenced by tradition, desires of pressure groups in the school community and by the students without sound planning and control of the administrator.

This program of the high school has been extended downward into the junior high school too often merely because the program existed in the high school. There has been little apparent research to determine if the needs of the junior high school student are being met by the activity program.

The incorporation of student activities into the junior high school curriculum requires a comprehensive and continuous evaluation by all faculty members. The activity program must contribute to realization of the general and special purposes of education for early youth. (Bossing and Cramer, 1964)

This study is an attempt to determine what effect involvement in the student activities by junior high school students has on the academic achievement of students involved in various types of activities and on students of various socio-economic backgrounds.

CHAPTER II

REVIEW OF THE LITERATURE

Growth of the Activities

The modern secondary school has evolved from an institution which
offered a program of studies restricted in the main to the linguistic
and mathematical fields. It served only the few, largely if not
entirely, drawn from the favored segments of society. What was once a
selective and highly academic institution has grown into the modern
cosmopolitan, comprehensive high school. Now the children of all the
people go to high school and study a wide variety of subjects.

Not only has the number of students increased greatly and the
curriculum broadened to include practically every aspect of life in a
complex, scientific, and technological society, but there has been added
to the traditional work of the school many special services to youth
including library, cafeteria, transportation, and many others. Not the
least dramatic of the many changes in the character of deliberate insti-
tutional education in America is the rich and varied extracurricular
and recreational programs involved.

The growth and expansion of the student activities program in the
American school has been somewhat gradual with no sharp periods of
change recorded. Frederick (1959) lists three and perhaps four stages
or periods of the non-study phase of school life. These periods have
been called: (1) The period of suppression in which activities were

opposed, condemned, and prohibited. This period was during the early colonial days. (2) The period of toleration in which educators simply relaxed the rules and penalties but held themselves aloof from non-academic contamination. This period was about mid-nineteenth century. (3) The period of capitalization in which student activities were made easily available, encouraged, urged, publicized and supported. This period began about the middle of the twentieth century and continues to the present. (4) The period of exploitation in which an activity or a cluster of related activities no longer has the primary motive of bene-fiting the participating students. The main motivating force becomes rather some benefit to the institution, the coach, or the administrator in the sponsoring role. This period according to Frederick is now emerging.

The secondary school, generally, follows the college and university in moving from one period to another; likewise, the junior high school usually follows the secondary school in these movements.

Growth and direction of the activity program in America were influenced to a great extent by three publications. The first was the development and widespread acceptance of the Cardinal Principles of Education of 1918 (1918); second, the 1926 yearbook of The National Society for the Study of Education (1926); and the third of these publi-cations, Extra Curricular Activities in the Secondary Schools by Elbert K. Fretwell (1931) added emphasis to the movement of acceptance of the activities in the secondary school that the earlier publications had begun. These three publications helped change educational leaders' attitude from one of tolerance toward the activities to widespread acceptance of activities as a necessary part of the curriculum.

The value of student activities within educational programs of four-year high schools began to be recognized by many school staffs immediately prior to the advent of the junior high school. The establishment of this school unit, when "extra-class activities were increasingly advocated and accepted as a vital part of the educational program on a par with the curricular and, in the minds of many peoples, a legitimate part of the curriculum itself, was most timely and fortunate." (Koos, 1955)

Bossing and Cramer (1965) report that the educational role of student activities was fairly well established within the junior high school curriculum during the 1940's. Shortly after mid-century, Tompkins (1951) reported that activities periods were included in the daily schedule in almost two-thirds of undivided junior-senior high schools and in more than two-thirds of the separate junior and senior high schools.

The number and scope of special interest clubs and activities have increased greatly. Frederick (1959) suggests a total of two hundred eighty-seven different clubs and activities in existence in the public schools. Bossing and Cramer (1965) state that there has been an increasing tendency to expand student activities in most junior high schools. The impetus for this growth stems from the philosophy of education aimed at accommodating the many interests of junior high school students.

Underlying Principles of the Activity Program

A number of principles underlying the activity program have been advocated by writers since the activities were introduced in the schools. Koos (1926) as chairman of the National Soceity for the Study of Education listed the following as some of the purposes or principles of the activity program:

1. Intellectual development
2. Recognition of interest and ambition
3. Exploration
4. Improved scholarship
5. Constructive influence and instruction
6. Training in the fundamental processes

The two basic underlying principles of student activities as advanced by Roemer and Allen (1926) on page two are:

> First, activities offer the school its best opportunity to help students do certain desirable things that they are going to do anyway; that is, take their places as members of social units and exercise, each according to his ability, those qualities of leadership, initiative, cooperation, and intelligent obedience, all fundamental in society. Second, activities offer a ready channel through which the school may utilize the spontaneous interest and activities of the adolescent and through these lead to high types of activities and make them both desirable and possible of attainment.

The activities of a school have many things to offer both to the student and to the curriculum. Miller, Moyer and Patrick (1956) on pages 13-17 advanced the following as some of the most commonly accepted:

A. Contributions to Students

   1. To provide opportunity for the pursuit of established interests and development of new interests.
   2. To educate for citizenship through experiences and insights that stress leadership, fellowship, cooperation, and independent action.
   3. To provide opportunities for satisfying the gregarious urge of children and youth.
   4. To strengthen the mental and physical health of students.
   5. To widen student contacts.
   6. To provide opportunities for students to exercise their creative capacities more fully.

B. Contributions to Curriculum Improvement

   1. To supplement or enrich classroom experiences.
   2. To motivate classroom instruction.

McKown (1952) on page thirty advocates these principles underlying the activity program:

> One very important function of education is to discover, stimulate, develop, widen and capitalize curiosities.

Extra-curricular activities offer opportunities for the student to become curious about himself, his qualifications and character-istics of all types, give him setting in which he can experiment with these through actual participation, and furnish situations in which he may further develop and capitalize these to his own immediate and ultimate satisfaction and profit.

A recent writer, Tompkins (1951), on page thirty gives as the over-all aims of the pupil activity program:

1. To lead to the development of worthy use of leisure time, self realization, and positive ethical and civic attitudes on the part of all pupils in the high school.
2. To engage the total resources of the faculty and the school in the study of the school's role in providing co-curricular experiences for all pupils.
3. To service all pupils democratically without social, economic, or scholastic restrictions.

On page ninety-one of the Indiana State Department of Education bulletin, The Junior High School, Wilson (1961) described the distinct educational benefits of student activities not available in regular classes or after school:

These extra class activities (student activities) should reinforce classroom learning through enrichment, variation, and exploration; provide for the learning of the social skills and social adjustment involved in citizenship, democratic processes, and neutral cooperation; provide desirable activities not possible in the regular classroom which will furnish wholesome recreational experiences for adolescent as well as adult life; lead students to broader social and cultural horizons; develop interest in school, thereby building better school morale; and aid in the discovery and identification of special interest and potential abilities.

The principles underlying the activity program in our school have changed very little since activities were first introduced into the school. Although the growth of the activities has been rapid and modern schools offer a great number and variety of activities, the principles upon which the activities were based have remained the same throughout the years.

Related Research

The research which has been done in the area of academic achieve-
ment of students as related to student involvement in the student
activities has provided no conclusive evidence of the contribution of
participation in student activities to the academic achievement of stu-
dents. Few of the studies in this area were made in recent years, and
none of the studies found by this writer were made on the junior high
school age group with which this study is concerned.

A study by Short and Drake in 1941 compared school marks of one
hundred thirty-eight students in one high school in the city of New York
over a period of four years with the following purposes: (1) To compare
marks of students, active versus non-active; (2) To compare marks of a
group when it was participating and when it was not participating; and
(3) To correlate marks of students active and non-active with I. Q. to
see which group more nearly maintained a standing in scholarship that
accords with the student's native ability. The results of this study
were: In the first question it was found that active groups, both boys
and girls, made slightly higher school marks than non-active groups.
In the second question the investigation revealed there was very little
difference in marks received by the students when they were matched by
I. Q. scores. In question three the writers found evidence to indicate
that the active group appeared to be achieving more in line with their
capacity to achieve than the non-active student. A general summary of
the results of this study gave some indication that students who are
active in the activity program of the high school do achieve slightly
higher marks than the non-participants.

A study of seven hundred high school graduates was made by Remmlein in 1939. The students in this study were only those students whose school grades and I. Q. had a correlation of less than $r = .50$. The purpose of this study was to investigate the possible reason for such a low relationship. Intensive participation in the extra-curricular activities was considered to be one possible reason accounting for the fact that some pupils with high I. Q.'s earned low school grades.

The findings of this investigation were that participation in the activities do not seem to have any effect on the grades of superior students or students of high I. Q. Remmlein concluded that it was obvious from these findings that the often accused participation in extra-curricular activities is not usually an important contributing factor in the low scholarship of intelligent students.

Tepper (1941) made a study of a group of students in the junior-senior high school of Teaneck, New Jersey. These students were eligible for graduation from the twelfth grade the following spring. This study was undertaken for the purpose of securing definite facts that would answer the question: "To what extent are the students participating in the extra-curricular activities scholastically successful?"

Conclusions reached by the writer were: (1) The study indicated that lack of interest in activities and lack of interest in class work tend to accompany each other. Certainly, lack of participation does not seem to improve class standing of the student. (2) In comparison with other investigations and in view of the fact that the entire activity program in Teaneck junior-senior high school takes place after school hours, the per cent of participation would indicate a high degree of success in meeting a wide variety of interest and needs of students.

(3) A correlation figure of .44 would indicate that the students who are successful scholastically tend to extend their activities into extra-curricular fields, and those who are successful outside the classroom tend to extend their successes into their curriculars. (4) In the effort to encourage the participation of the non-active group, care should be taken to limit the over-active group. While there is no evidence to prove that participation as a whole affects scholarship in other than a desirable manner, individual cases were found that require investigation and checking. It is probable that no student should carry a normal scholastic load plus several activities. (5) The activity program by reaching half of the students is accomplishing a great deal. Ways should be sought by which the other half of the students could be encouraged to participate for it is probable that most of these students need this type of work.

In a study by Bond (1950) the author stated that the scattering of time and attention among many activities offered by the school was submitted by high school pupils as a prominent reason for not making better marks in their classes. All groups of pupils in this study, whether arranged by ability, achievement, sex, or grade level, main-tained that it was especially difficult for them to get started to work; that the radio, television, and other activities interferred with study; that they had a tendency to daydream; and that they had so many things to do that it was impossible to do any of them as well as they should.

The variety of activities in which the individual engages, as well as the amount of knowledge he must possess in order to make a minimum adjustment to life, has increased immeasurably during the past fifty years. The student finds it difficult, if not impossible, to exclude

all this from his consciousness so that he can give his undivided attention to one thing at a time. Thus, the high school pupil finds it hard to get started to study and easy to daydream.

Bond found that in order to give its pupils a broad education, the secondary school has extended its offerings, increased the number of elective classes, and established a co-curricular program. Valuable as these measures have been, they have unfortunately tended to disperse the attention of the pupil still further. As the pupil realizes that he does not have the time and energy to do his work well, he can scarcely be blamed if he loses the inclination to try. Mediocrity of work in all things can easily become his standard. In this study by Bond it was discovered that all groups of pupils checked gave as a prominent reason for not making better marks the fact that they preferred to learn and to express themselves through means other than words.

Other studies by Mueller (1939), Mechtly (1935), and Crawford (1929) each revealed a very low relationship between participation in activities and grades achieved. Mueller conducted a study of six hundred forty students from twenty-six high schools in the northeast section of the United States. A very low positive coefficient of correlation was found between the number of activities engaged in by the student and the average grades made by the student in school. Mechtly's study of two hundred thirteen senior high school students revealed a slight negative relationship between time spent in the activities and the raw gains scored on pretest and postest by achievement test over a one year period of time. A similar study by Crawford also examined a small group of high school students involved in the major activities. The writer also

found a slight positive relationship between participation in the major activities and the grades received in school.

A study by Dolan (1952) concerning the cost of attending school found that the additional cost to the student to participate in the activity program of the school in many cases prohibited the student from the lower socio-economic class from taking part in the program. Dolan was only concerned with cost and did not attempt to determine if this lack of participation by students of lower socio-economic class had any particular effect on those students.

Swanson (1924) studied three hundred ninety-eight students who had graduated from four Kansas City high schools and were at the time of the study enrolled in a junior college. The criteria for measuring achievement in this study was average high school grades. Athletes and school leaders as a group were also studied as a separate group. The results of this study indicated that students who participated in school activities as a group were only slightly above average in intelligence. Further, participation did not significantly affect students' scholastic standing.

A study by Temper (1928) examined a small sample of high school students over a one year period to determine if participation in the extra-curricular had any effect on scholarship. These students were from only one high school and the study was limited to students involved only in the so-called major activities such as athletics and school publications. School grades attained by the student were used as a criterion of school achievement. The investigator found some evidence to indicate a positive relationship between participation in these major activities and the grades these students received in school.

A more recent study by Eidsmae (1961) related to this study in that it compared the grade point average of a group of high school basketball players, both boys and girls, to the grade point average of the entire class in which they were enrolled. The results of this study revealed that the athletes, both boys and girls, had significantly higher grades than other students from their class. The results of this study, although limited to teams involved in the state playoff tournament, could indicate that athletic participation has a therapeutic value in developing a more wholesome interest in subject matter in school. The study also shows very plainly that athletes such as basketball players who were highly competitive in these chosen sports are also above the average of their fellow students in academic performance.

Summary of Related Research

A summary of the related research concerning the effect of participation in student activities on achievement as it related to the present study presents a somewhat contradicting set of conclusions from the previous studies. A summary of the research as it pertains to the present study includes:

(1) There is slight evidence to indicate that students who are active in the activity program of the school are usually achieving more nearly to their capacity to achieve than those students with similar capacity who are not participating in the activities.

(2) Intensive participation by students in the activities is not usually an important contributing factor to low scholarship, at least not with the more intelligent student who makes low grades in school.

(3) Participation in a great number of activities may be a factor in contributing to a lack of interest in regular curricular subjects by many students. This lack of interest may cause the student to achieve below his capacity. Evidence would also indicate that there should be some limitations on the number of activities in which a student should be allowed to participate.

(4) The relative high cost to students engaged in the activity program may be a contributing factor in eliminating some students of the lower socio-economic class from participation in the activity program. Evidence would indicate that students who are successful in the activities outside the classroom are also successful in the classroom. This should be one basis for encouraging all students to participate in at least a minimum activity program. Arrangements should be made to allow students from the lower socio-economic class to participate at a minimum cost to the student.

(5) Students indicated that they prefer to learn and to express themselves through means other than words. This desire to learn through activities is a valid reason to encourage all students to participate in some type of activity and to provide a varied program to meet the needs of all students with varied backgrounds and abilities.

This writer found no studies that offer conclusive evidence of the effect that participation in student activities may have on the academic achievement of the students. No study was found that had investigated the effects that participation in student activities may have on junior high school students and other questions that this writer investigated had apparently not previously been investigated.

CHAPTER III

SAMPLES, INSTRUMENTS, AND PROCEDURES USED IN CONDUCTING THE STUDY

Status of the Activity Program in the Study

In order to determine the status of the activity program in this study, a survey was made to determine the extent and type of student activity programs in the junior high schools involved in this study. A short questionnaire[1] was sent to all junior high schools and a request was made for a handbook from each school. A total of ten junior high schools responded to the questionnaire. All schools did not have handbooks. A general summary of this survey revealed the following:

1. Two schools had all activities on school time. The remainder of the schools scheduled activities both during school hours and also before or after school hours.

2. Only one junior high school responding indicated that at least one activity was required. The remainder of the schools did not require students to engage in any activity.

3. Three schools indicated that some restrictions were placed on the number of activities in which a student could participate. These restrictions were: (a) Not more than three activities are permitted for any student. (b) Restrictions depend on grade rank. Students of average rank were restricted to one activity outside of school time. A student of high grade rank may participate in as many as three activities. (c) A point system was used by one school. Points were given for positions of responsibility in the activities and students are limited to a total of nine points each semester. No limit was placed on membership in organizations.

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[1]See Appendix B for copy of questionnaire.

4. Four schools indicated that a few students were unable to participate in some activities because of bus schedules or work. However, all indicated that almost all students were able to participate if they so desired.

5. All schools offered a wide variety of activities. This variety of activities should permit all students, regardless of interest, to have an opportunity to engage in some activity.

Student Samples Included in the Study

Since the purpose of this study was to determine the effects of involvement in school activities on the academic achievement of junior high students, the sample was taken from students who had completed all three years of junior high school. The sample for the study was taken from sophomore classes of the eleven senior high schools in the Oklahoma City, Oklahoma, public school system. These students were first semester sophomores at the time of the sampling. Most of the students included had attended at least one of the fifteen junior high schools or combination junior-senior high schools during the three years previous to the time of this sampling.

The sample was taken beginning the last week in November, 1964, and extended for approximately two weeks. At the time of the sampling there were approximately 5,000 students enrolled in the sophomore classes of the eleven senior high schools. The sample for this study was obtained by taking each tenth student from the current attendance register of each high school. This gave a sample of 500 students for this study.

In the conduct of this study two high schools in the school system were not included. One of the schools with twenty-one students in the sample did not choose to participate in the study and the second school with thirty students in the sample did not administer the STEP test that

was used in the study and therefore had to be eliminated. This left a total of 449 students in the sample.

From the total of 449 students who were questioned in the study, 84 students were eliminated because the test records for these students were not complete. Of the 84 students eliminated, 26 were eliminated because they had no California Achievement test. The students not having STEP scores either had moved to other schools after the tests were given or had moved to the present schools after the tests were administered and records had not been transferred. The students not having the California Achievement tests had not attended elementary schools in the Oklahoma City district and had not taken the California Achievement tests in the sixth grade. After these 84 students were eliminated from the study, a total of 365 students remained to be studied.[2]

Although no attempt was made in this study to determine different effects on boys and girls participating in the activities, a breakdown of the sample according to sex was 179 boys and 186 girls.

TABLE I

STUDENTS INCLUDED IN THE SAMPLE

High School	Boys	Girls	Total
1	24	22	46
2	28	27	55
3	38	40	78
4	13	18	31
5	23	23	46
6	9	5	14
7	32	21	53
8	7	19	26
9	5	11	16
Totals	179	186	365

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[2]For list of students including socio-economic class, participation scores, and achievement scores, see Appendix C.

Instruments Used in the Study

One of the instruments used in the study was the Activity Rating Sheet.[3] This rating instrument was designed to determine the average amount of time a student involved in that particular activity spent in the activity. Different positions or roles in the activity were listed separately and each role was rated in terms of average time spent by the student. Responsibility roles were also rated in the same manner on this sheet. A rating from one to five, with one the lowest and five the highest, was used.

The lower part of the rating sheet was used to assist the writer in determining the major purpose of that activity as it functioned in that school. The classification of the type of activity was determined by the major purpose as indicated on the rating sheet.

An activity rating sheet was furnished for each activity in the school together with instructions for completion. These activity rating sheets were distributed to the principal of each junior high school and he or some person knowledgeable of the entire activity program rated each of the various activities. Since no rating sheet of this type could be found in the literature, it was necessary for the writer, with the assistance of qualified measurement experts, to design this rating sheet to meet the particular needs of this study.

The Student Questionnaire[4] used in the conduct of this study was designed to secure the following information necessary in the study:

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[3] For copy of Activity Rating Sheet and instructions for using see Appendix D.

[4] For copy of Student Questionnaire and instructions for using see Appendix E.

(1) the name and sex of the student; (2) junior high school attendance; (3) father's and mother's occupation and education; (4) a list by semester of all activities engaged in by the student and a list by semester of the offices or positions of responsibility held by that student.

The student questionnaire was distributed to all students in the sample and instructions for administering the questionnaire were given to the principal of each high school included in the study. This instrument was designed by the writer to meet the particular needs of this study.

Test scores for each student were obtained from the California Achievement Tests. Both the 1950 edition, form AA, and the 1957 edition, form W, had been used when the tests were administered to these students. These tests had been administered during the second semester of the sixth grade. Since both sets of the sixth grade language, reading, and arithmetic scores obtained had to be based on the same norms, a conversion table was used to convert the form AA scores to the same norms as the form W.

Concerning the validity of the California Achievement Tests, 1950 edition, Scores (1953) writes that,

> The California Achievement Tests, 1950 edition, are useful for a general survey of those aspects of reading, arithmetic and language commonly measured by tests of general achievement. Within this framework they are probably as accurate and well constructed as other widely used achievement batteries.

Commenting on the validity of the 1957 edition of the California Achievement Tests, Neidt (1959) states that,

> The 1957 edition of the California Achievement Tests represents a well constructed achievement test battery designed to measure the basic fundamentals of reading, mathematics, and language.

Test scores were also obtained from the Cooperative Sequential Tests of Educational Progress (STEP) form 2A. These tests were taken early in the first semester of the student's sophomore year.

Concerning the validity of the STEP tests, Jackson (1950) concluded that,

> It is the belief of the writer that from the technical point of view, the STEP series is undoubtedly one of the best available. In some respects, such as range and comparability, the series is quite unsurpassed. Test users can safely adopt the series, if they so desire, secure in the knowledge that the various tests have been carefully and competently prepared and standardized.

Limitations of the Study

Although controlling all variables which might affect the results on achievement would have been desirable, it was impossible to regulate (1) the activities other than school activities in which the student engaged and (2) the degree to which some students were able to adjust their time to better meet their schedule of activities and study. Because of the large sample included in the study, it was assumed that the effect of these variables was randomized.

This study was restricted to one school system. Only sophomore students who attended one of the selected schools for a three-year period and for whom test data and information are complete were studied. Although the study was restricted to one school system, the size of the system and the wide range of socio-economic backgrounds of the students as evidenced by the completed student questionnaires are such to have implications for schools of most any size and for students with most any socio-economic background.

The classification of the various activities into types according to the purpose of the activity was limited to general classifications made by this writer. A survey of the literature did not indicate a more acceptable method that could be used in this study. The person in the school knowledgeable of the activities evaluated each activity in terms of the major purpose of the activity and this evaluation was used to aid in the classification of the activity.

The information obtained from the student questionnaire concerning his total involvement in the activities was limited to what he indicated as his involvement. Checks of school records did not reveal records of involvement in the activity program to verify the information obtained.

The classification of students into socio-economic levels according to occupation and education of the parent was used in this study. A survey of the literature did not indicate a more acceptable method that could be used in this study.

The study was further limited to only the investigation of academic achievement of students and was not concerned with other contributions claimed of the activities program.

The achievement measuring instruments used in this study have been standardized and have professed validity. The writer assumed that these instruments were valid for the purpose for which they were used in this study.

Procedures Used in the Collection of Data

In pursuing this investigation, the following procedures were followed:

1. An instrument was designed for rating the various roles served by students in the different school activities in terms of the demands placed upon the student's time and responsibilities in the various roles.

2. A questionnaire was developed to determine for each semester the activities and the role served in the activity by each student. This questionnaire was used to secure information relative to the student's socio-economic background, also.

3. A sample school system was selected. A school system containing several junior high schools was necessary. Since only Tulsa and Oklahoma City met this requirement of the schools in this area, these two school systems were contacted. The Tulsa system did not administer tests necessary for this study. Permission was then requested to conduct the study in the Oklahoma City school system. A written request was submitted to a research committee of the system to secure permission to conduct the study.

4. A preliminary study was conducted to determine the type and extent of the activity program in the junior high schools of the school system included in the study. A questionnaire was mailed to all junior high schools. The information secured from the questionnaire was used to determine what activities would be included in the study.

5. A meeting with all secondary school principals was arranged for the last week in November, 1964. At this meeting instructions for administering both the rating sheets for the activities and the student questionnaire were given. Due to the large number of schools involved in the study it was decided that each school involved would complete the rating sheets and administer the student questionnaire and return to the writer by mail. A period of approximately one month was allowed for all schools to complete the rating sheets and student questionnaires.

6. Achievement data for each student as indicated by achievement tests taken from the California Achievement tests in the sixth grade and from the STEP tests in the sophomore year were collected. This was done by examining the cumulative record for each student in the study. A visit to each of the high schools in the study was necessary to secure this test information.

7. The data were analyzed and interpreted.

8. Conclusions were drawn, implications for education were cited, and recommendations for further research were presented.

Statistical Procedures

In order to attempt to answer the questions posed in this study, it was necessary to arrange the data into several categories such as socio-economic class, type of activities, and participation. To analyze this data two statistical procedures were needed.

To determine if the difference between three or more independent samples signify genuine population difference or whether it represented merely chance variations such as are to be expected among several random samples was the first question to be analyzed. The Kruskal-Wallis one way analysis of variance by rank was the statistical procedure used. Concerning this statistic Siegel (1956) says:

> The Kruskal-Wallis one way analysis of variance by rank is an extremely useful test for deciding whether k independent samples are from different populations. Sample values almost invariably differ somewhat, and the question is whether the difference among the samples signify genuine population differences or whether they represent merely chance variations such as are to be expected among several random samples from the same population. The Kruskal-Wallis technique tests the null hypothesis that the k sample came from the same population or from identical populations with respect to averages. The test assumes that the variable under study has an underlying continuous distribution. It requires at least ordinal measurement of that variable.

The Kruskal-Wallis test is a non-parametric test equivalent to or associated with the parametric F tests. The non-parametric test was used in this study to avoid making the assumptions concerning normality and homogeneity of variance associated with the F tests and to increase the generality of the findings.

The Kruskal-Wallis test is a powerful test. Concerning the power-efficiency Siegel states on pages 192-193 that:

> Compared with the most powerful parametric test, the F test, under conditions where the assumptions associated with the

statistical model of the F test are met, the Kruskal-Wallis test has asyptotic efficiency of $\frac{3}{\pi}$ = 95.5 per cent.

The Kruskal-Wallis test is more efficient than the extension of the median test because it utilizes more of the information in the observations, converting the scores into ranks rather than simply dichotomizing them as above and below the median.

When significant differences were found to be present among three or more groups in the sample, another statistic was needed to test differences between any two categories of the sample. The Mann-Whitney U test was the statistic used to test this difference. Concerning this statistic, Siegel states on page 126 that:

When at least ordinal measurement has been achieved, the Mann-Whitney U test may be used to test whether two independent groups have been drawn from the same population. This is one of the most powerful of the non-parametric tests, and it is a most useful alternative to the parametric t test when the researcher wishes to avoid the t test's assumptions, or when the measurement in the research is weaker than the interval scale.

The Mann-Whitney U test is also a strong non-parametric test. Siegel comments:

If the Mann-Whitney test is applied to data which might properly be analyzed by the most powerful parametric test, the t test, its power-efficiency approaches $\frac{3}{\pi}$ = 95.5 per cent as N increases and is close to 95 per cent even for moderate sized sample. It is therefore an excellent alternative to the t test, and it does not have the restrictive assumptions and requirements associated with the t test.

In analyzing the data in this study, the writer assumed the responsibility of calculating the Kruskal-Wallis portion of the analysis and the Oklahoma State University computing center assisted by computing the Mann-Whitney U test necessary to complete the analysis of the data.

CHAPTER IV

FINDINGS

In this study of the relationship of involvement in school activities to the academic achievement of junior high school students, answers to the following basic questions were sought:

1. Is there a direct relationship between student involvement in the student activities in terms of time devoted to all the activities and the academic achievement of the student?

2. Is there a direct relationship between the type of student activities in which a student participates and the academic achievement of the student?

3. Is there a direct relationship between student involvement in the student activities in terms of time devoted to each of the various types of activities and the academic achievement of the student?

4. Is there a direct relationship between student involvement in the student activities in terms of time devoted to all the activities and the academic achievement of students of certain socio-economic levels?

5. Is there a direct relationship between the type of student activities in which a student participates and the academic achievement of students of certain socio-economic levels?

6. Is there a direct relationship between student involvement in the student activities in terms of time devoted to the various types of activities and the academic achievement of students of certain socio-economic levels?

This chapter presents the statistical analysis of data obtained pertaining to these basic questions.

Question 1

Is there a direct relationship between student involvement in
the student activities in terms of time devoted to all the
activities and the academic achievement of the student?

In order to attempt to answer the first question, all students,
without regard to socio-economic class or to type of activity participa-
tion, were placed into three categories. These three categories were:
(1) no participation; (2) low participation; and (3) high participation.
The student's participation score was determined by totaling the points
as indicated on the activity rating sheet for all activities listed by
the student. Students who indicated that they had participated in no
student activities were included in the no participation group. Stu-
dents whose total participation scores ranged from one through nineteen
were included in the low participation group. The high participation
group consisted of those students whose total participation scores ranged
from twenty upward.

The Kruskal-Wallis one way analysis of variance was used to deter-
mine if there were significant differences between scores achieved by
students in the three categories. For the Kruskal-Wallis test the .05
level of confidence was used as the level which the H score must equal
in order for the difference found to be significant.

Four scores for academic achievement were used for each student in
the study. The California arithmetic achievement scores and the Cali-
fornia reading achievement scores were recorded when the students were
nearing completion of the sixth grade. The STEP mathematics achievement
scores and the STEP writing achievement scores were recorded early in
the students' sophomore year in high school. Each student in the sample

had attended three years in one of the junior high schools in the school system.

The Kruskal-Wallis test on the first of the four scores, the California arithmetic score, gave an $\underline{H}$ score of 4.595 which with two degrees of freedom indicates there is no significant difference between students from the three participation groups. Table XXIV on page 100[1] shows the results of this test.

Calculations for the three participation groups on the California reading test scores show an $\underline{H}$ of 10.7369 which with two degrees of freedom gave a score which is significant at the .05 level of confidence and is also significant at the .01 level of confidence. Table XXV on page 101 gives the results of this test.

Table XXVI, page 102, gives the calculations for the Kruskal-Wallis test of the STEP mathematics scores achieved by the three groups related to the degree of participation in the activities for the three year period. An $\underline{H}$ of 4.5053 was found and this is not significant at the level of confidence desired for this study.

The last of the four scores, the STEP writing achievement scores, were analyzed and an $\underline{H}$ of 24.2237 was found. This $\underline{H}$ is significant at both the .05 and the .01 levels of confidence. The results of this test are recorded in Table XXVII, page 103.

On the Kruskal-Wallis series of tests to determine if there were significant differences among the three participation groups, two of the tests revealed that there were significant differences present. These two tests were the California reading achievement and the STEP writing

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[1]For Tables on the findings, see Appendix F.

achievement tests. A summary of the Kruskal-Wallis series of tests are recorded in Table II.

TABLE II

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF ACHIEVEMENT SCORES
RELATED TO THE DEGREE OF PARTICIPATION IN TERMS OF
TIME DEVOTED TO ALL ACTIVITIES

	California Arithmetic	California Reading	STEP Mathematics	STEP Writing
Degrees of Freedom	2	2	2	2
H Score	4.6856	10.7369	4.5053	24.2237
Difference	Not Significant	Significant	Not Significant	Significant

In an attempt to determine between which participation groups this difference occurred, the Mann-Whitney U statistic was used to compare single categories against other single categories. The general design for this test was to compare the following: (1) no participation compared to low participation; (2) no participation compared to high participation; and, (3) low participation compared to high participation.

For this statistical analysis, the .05 level of confidence was used. The z scores obtained by use of the Mann-Whitney U test had to reach a minimum value of 1.96 in order to attain this .05 level of confidence.

The first test that revealed a significant difference overall was the California reading test. The Mann-Whitney U test was used to compare all combinations of the three participation groups. Only one significant z score was found. This score, 2.90, was obtained when no participation was compared to high participation. Results of this comparison are recorded in Table III.

TABLE III

THE MANN-WHITNEY U COMPARISON OF CALIFORNIA READING SCORES RELATED
TO THE DEGREE OF PARTICIPATION IN ALL ACTIVITIES BY ALL STUDENTS

Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Z Score
I&II	All	O		I&II	All	H	2.90

The second test that revealed a significant difference overall was
the STEP writing test. The Mann-Whitney U was also used to compare the
three groups. When the group with no participation was compared to the
group with low participation, a z of 4.04 was found. This z is signifi-
cant at the .05 level of confidence. When the group with no
participation was compared with the high participation group, a z of 6.12
was found. This is also significant at the .05 level. The comparison
between the low and high groups did not reveal a significant z score.
Results of the significant comparisons are given in Table IV.

TABLE IV

THE MANN-WHITNEY U COMPARISON OF STEP WRITING SCORES RELATED TO THE
DEGREE OF PARTICIPATION IN ALL ACTIVITIES BY ALL STUDENTS

Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Z Score
I&II	All	O		I&II	All	L	4.04
I&II	All	O		I&II	All	H	6.12

In summary, the statistical test applied found that a significant
difference at the .05 level of confidence existed between students with
no participation, students with low participation, and students with

high participation in the activities. One achievement test taken before the three years of participation and one achievement test taken after the period contained this difference. A further examination of these differences by using the Mann-Whitney U test found that most of this difference existed between students with no participation and those with high participation. In one test differences existed between students with no participation and students with low participation.

Question 2

Is there a direct relationship between the type of student activities in which a student participates and the academic achievement of the student?

Question two was analyzed by placing each student in one of eight categories according to his participation in the various types of activities.

The eight categories into which students were placed are: (1) no participation; (2) Type I, physical development activities; (3) Type II, intellectual development activities; (4) Type III, cultural development activities; (5) Type IV, school contribution activities; (6) Type V, school and community service activities; (7) participation in two activities; and, (8) participation in three or more activities. Students were not separated according to socio-economic class for this test.

The achievement scores for the California arithmetic test were analyzed by the Kruskal-Wallis one way analysis of variance for these eight groups who participated in the various types of activities. An H of 7.8571 was found and with seven degrees of freedom, this H is not

significant to meet the desired level of confidence. The results of this test are shown in Table XXVIII on page 104.

Calculations for the eight groups on the California reading test show an $\underline{H}$ of 15.3790 which is significant at the .05 level of confidence indicating that there were significant differences between students' achievement on this test. Table XXIX, page 105, records the results of this statistical test.

Table XXX, page 106, shows the results of the calculations for the Kruskal-Wallis tests of the STEP mathematics scores achieved by the eight different groups of students involved in various types of activities for the three year period. An $\underline{H}$ of 10.0625 was found and with the seven degrees of freedom, this $\underline{H}$ does not reach the .05 level of confidence.

The fourth achievement scores, the STEP writing scores, were analyzed and an $\underline{H}$ of 37.1773 was found. This $\underline{H}$ with seven degrees of freedom is significant at both the .05 and the .01 levels of confidence. Results of this test are recorded in Table XXXI on page 107.

The Kruskal-Wallis tests showed significant differences among the eight groups tested on two of the four achievement tests. These two were the California reading achievement and the STEP writing achievement tests. To determine between which groups this difference occurred, the Mann-Whitney U was used to compare each group against each of the other seven groups. A total of twenty-eight comparisons were made in this test. A summary of the Kruskal-Wallis tests is recorded in Table V.

Only one significant $\underline{z}$ score was obtained when the Mann-Whitney U test was applied to the California reading achievement scores. This significant score was obtained when all students participating in Type V

activities were compared to all students participating in two types of activities. Results of the significant test are recorded in Table VI.

TABLE V

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF ACHIEVEMENT SCORES
RELATED TO THE TYPE OF ACTIVITY PARTICIPATED IN BY ALL STUDENTS

	California Arithmetic	California Reading	STEP Mathematics	STEP Writing
Degrees of Freedom	7	7	7	7
H Score	7.8571	15.3790	10.0625	37.1773
Difference	Not Significant	Significant	Not Significant	Significant

TABLE VI

THE MANN-WHITNEY U COMPARISON OF CALIFORNIA READING SCORES RELATED TO
TYPE OF ACTIVITY PARTICIPATION BY ALL STUDENTS

Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Z Score
I&II	V	L&H		I&II	Two	L&H	2.00

When the STEP writing scores were compared by use of the Mann-Whitney U, nine of the groups tested gave a z score that was significant at the .05 level of confidence. The groups tested and the z scores are reported in Table VII, page 40.

Analysis of these groups found significant differences exist over-all in achievement scores on two of the four tests--one before the participation and one after the three year period of participation. An analysis comparing all groups that revealed this significant difference

disclosed that much of this total difference exists between those who did not participate in any activity and those who did participate in any of the various types. Significant differences were found to exist between test scores of students with no participation and test scores of students who participated in each of the various types of activities.

TABLE VII

THE MANN-WHITNEY U COMPARISON OF STEP WRITING SCORES RELATED TO THE
TYPE OF ACTIVITY PARTICIPATION BY ALL STUDENTS

Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Z Score
I&II		O		I&II	I	L&H	3.67
I&II		O		I&II	II	L&H	3.33
I&II		O		I&II	III	L&H	2.71
I&II		O		I&II	IV	L&H	2.48
I&II		O		I&II	V	L&H	4.21
I&II		O		I&II	Two	L&H	5.06
I&II		O		I&II	Three	L&H	4.64
I&II	I	L&H		I&II	Two	L&H	2.40
I&II	III	L&H		I&II	Two	L&H	2.00

Question 3

Is there a direct relationship between student involvement in the student activities in terms of time devoted to each of the various types of activities and the academic achievement of the student?

An analysis of question three was accomplished by placing each student in one of fifteen different categories. These categories were the same as those for question two except that each type of activity was divided into low and high participation. This gave groups of no participation, and low and high participation in each of the seven types of activities. Students of both socio-economic groups were included in each category.

Analysis of the fifteen groups on the California arithmetic achieve-ment test gave an $\underline{H}$ score of 15.3492 which with fourteen degrees of freedom did not reach the .05 level of confidence. The results of this test are recorded in Table XXXII on page 108.

Calculations for the fifteen groups on the California reading achievement test gave an $\underline{H}$ of 11.0257 which with fourteen degrees of freedom did not meet the .05 level of confidence. Results of this analysis are recorded in Table XXXIII, page 109.

Results of the Kruskal-Wallis test applied to students' scores on the STEP mathematics scores revealed an $\underline{H}$ score of 16.7427 which with seven degrees of freedom did not attain the .05 level of confidence and thus it is concluded that the difference between these fifteen groups is not significant. The calculations for this test are given in Table XXXIV on page 110.

When the total difference was computed between the scores achieved on the STEP writing scores for the fifteen groups of students, an $\underline{H}$ of 47.4873 was found. This $\underline{H}$ with fourteen degrees of freedom reached both the .05 and the .01 levels of confidence. The tabulation of this problem is shown in Table XXXV, page 111. A summary of the four Kruskal-Wallis tests is found in Table VIII, page 42.

When the fifteen different groups in this question were tested for significant differences, only one set of achievement scores, the STEP writing achievement scores, gave a significant difference. The Mann-Whitney U test was applied to all combinations of the fifteen groups and twenty-two of the one hundred five combinations tested reached the re-quired $\underline{z}$ score of 1.96 necessary to be significant at the .05 level of confidence. Results of these comparisons are recorded in Table IX.

TABLE VIII

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF ACHIEVEMENT SCORES
RELATED TO THE DEGREE OF PARTICIPATION IN THE VARIOUS TYPES
OF ACTIVITIES BY ALL STUDENTS

	California Arithmetic	California Reading	STEP Mathematics	STEP Writing
Degrees of Freedom	14	14	14	14
H Score	15.3492	11.0257	16.7427	47.4873
Difference	Not Significant	Not Significant	Not Significant	Significant

TABLE IX

THE MANN-WHITNEY U COMPARISON OF STEP WRITING SCORES RELATED TO
THE DEGREE OF PARTICIPATION IN THE VARIOUS TYPES
OF ACTIVITIES FOR ALL STUDENTS

Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Z Score
I&II		O		I&II	I	L	2.97
I&II		O		I&II	I	H	2.94
I&II		O		I&II	II	L	1.96
I&II		O		I&II	II	H	3.19
I&II		O		I&II	III	H	2.48
I&II		O		I&II	IV	H	2.87
I&II		O		I&II	V	L	3.02
I&II		O		I&II	V	H	3.94
I&II		O		I&II	Two	L	2.67
I&II		O		I&II	Two	H	5.36
I&II		O		I&II	Three	L	2.28
I&II		O		I&II	Three	H	4.55
I&II	I	H		I&II	V	H	2.48
I&II	I	H		I&II	Two	H	3.10
I&II	III	L		I&II	Two	H	2.03
I&II	III	H		I&II	V	H	2.03
I&II	III	H		I&II	Two	H	2.45
I&II	IV	L		I&II	V	H	2.08
I&II	IV	L		I&II	Two	H	2.69
I&II	V	L		I&II	V	H	2.15
I&II	V	L		I&II	Two	H	2.62
I&II	Two	H		I&II	Three	H	2.31

In summary, when the scores of these groups were analyzed, only one
set of achievement scores, the STEP writing scores, provided a differ-
ence significant at the .05 level of confidence. Comparisons between
each of the single groups found that significant differences existed be-
tween students with no participation and those who participated in any
of the other seven types of activities. In most instances this signifi-
cant difference was found in both low and high participation.

<div align="center">Question 4</div>

> Is there a direct relationship between student involvement in
> the student activities in terms of time devoted to all the
> activities and the academic achievement of students of
> certain socio-economic levels?

To answer question four, students were placed into six categories
according to time involvement in the activities and to the socio-economic
class of the student. These six categories are: (1) no participation,
Class I; (2) low participation, Class I; (3) high participation, Class I;
(4) no participation, Class II; (5) low participation, Class II; and,
(6) high participation, Class II. The Kruskal-Wallis one way analysis
was used on each of the four scores to determine if there were signifi-
cant differences among the six groups.

Calculations between the degrees of participation and the socio-
economic classes of the six groups gave an H of 31.7681 which with five
degrees of freedom reached both the .05 and the .01 levels of confidence
for the California arithmetic test. Results of this calculation are
found in Table XXXVI on page 112.

Table XXXVII on page 113 shows that when the California reading
scores achieved by the six groups were tested, an H of 46.5991 was

found. This $\underline{H}$ with five degrees of freedom reached both the .05 and the .01 levels of confidence.

Calculations for the STEP mathematics scores involving the six groups of students gave an $\underline{H}$ of 47.6910 which with five degrees of freedom met both the .05 and the .01 levels of confidence. Results of this analysis are shown in Table **XXXVIII** on page 114.

The last of the four achievement scores, the STEP writing scores, were analyzed and an $\underline{H}$ of 75.9545 was found. With five degrees of freedom this $\underline{H}$ is significant at both the .05 and the .01 levels of confidence. Results of this test are recorded in Table **XXXIX**, page 115.

A summary of the Kruskal-Wallis findings pertaining to this question is recorded in Table **X**.

TABLE X

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF ACHIEVEMENT SCORES
RELATED TO THE DEGREE OF PARTICIPATION IN TERMS OF TIME SPENT IN
ALL ACTIVITIES BY STUDENTS OF DIFFERENT SOCIO-ECONOMIC CLASS

	California Arithmetic	California Reading	STEP Mathematics	STEP Writing
Degrees of Freedom	5	5	5	5
$\underline{H}$ Score	31.7681	46.5999	47.6910	75.9545
Difference	Significant	Significant	Significant	Significant

In this question all four groups of achievement scores tested by the Kruskal-Wallis one way analysis of variance revealed a significant difference among the six groups tested. The Mann-Whitney U test was applied to each set of scores to determine which pairs of groups contributed to this overall difference.

In this series of tests, the six categories are: (1) no partici-
pation, Class I; (2) low participation, Class I; (3) high participation,
Class I; (4) no participation, Class II; (5) low participation, Class II;
and, (6) high participation, Class II. All combinations of these groups
were compared. This gave a total of fifteen comparisons.

The California arithmetic scores were tested by the Mann-Whitney U
and of the fifteen comparisons, a total of six reached the required 1.96
score which is significant at the .05 level of confidence. Table XI
gives the results of these comparisons.

TABLE XI

THE MANN-WHITNEY U COMPARISON OF CALIFORNIA ARITHMETIC SCORES RELATED
TO THE DEGREE OF PARTICIPATION BY STUDENTS OF
DIFFERENT SOCIO-ECONOMIC CLASSES

Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Z Score
I	All	L		II	All	O	2.92
I	All	L		II	All	L	3.13
I	All	L		II	All	H	2.58
I	All	H		II	All	O	3.91
I	All	H		II	All	L	4.35
I	All	H		II	All	H	3.78

The Mann-Whitney U test was then applied to the California reading
scores. Of the fifteen comparisons made between the six groups, five
of the comparisons gave a score that is significant at the .05 level of
confidence. Table XII records these comparisons.

The Kruskal-Wallis test of STEP mathematics scores gave an $\underline{H}$ score
of 47.6910 which was the first STEP mathematics scores in the series of
questions to be significant. The Mann-Whitney U test was applied to the

different groups and nine of the fifteen comparisons gave a significant

difference. Table XIII lists those groups that had a significant differ-

ence between them.

TABLE XII

THE MANN-WHITNEY U COMPARISON OF CALIFORNIA READING SCORES
RELATED TO THE DEGREE OF PARTICIPATION BY STUDENTS
OF DIFFERENT SOCIO-ECONOMIC CLASSES

Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Z Score
I	All	L		II	All	L	2.81
I	All	L		II	All	H	2.83
I	All	H		II	O	O	2.68
I	All	H		II	All	L	4.47
I	All	H		II	All	H	4.69

TABLE XIII

THE MANN-WHITNEY U COMPARISON OF STEP MATHEMATICS SCORES RELATED
TO THE DEGREE OF PARTICIPATION BY STUDENTS OF
DIFFERENT SOCIO-ECONOMIC CLASSES

Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Z Score
I		O		II		O	3.33
I		O		II	All	L	2.93
I		O		II	All	H	3.00
I	All	L		II		O	4.07
I	All	L		II	All	L	3.22
I	All	L		II	All	H	3.38
I	All	H		II		O	4.76
I	All	H		II	All	L	4.29
I	All	H		II	All	H	4.53

The STEP writing achievement test scores produced a total of

eleven of the fifteen groups with significant differences when the Mann-

Whitney U test was administered between each combination of the six

groups. The results of this group of comparisons, with only the significant comparisons shown, are recorded in Table XIV.

TABLE XIV

THE MANN-WHITNEY U COMPARISON OF STEP WRITING SCORES RELATED TO THE
DEGREE OF PARTICIPATION BY STUDENTS OF DIFFERENT
SOCIO-ECONOMIC CLASSES

Socio-Economic Class	Type of Activity	Participation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Participation O-L-H	Z Score
I		O		I	All	L	2.43
I		O		I	All	H	2.62
I		O		II		O	2.44
I	All	L		II		O	6.20
I	All	L		II	All	L	4.56
I	All	L		II	All	H	3.51
I	All	H		II		O	6.75
I	All	H		II	All	L	5.17
I	All	H		II	All	H	4.11
II		O		II	All	H	4.72
II	All	L		II	All	H	2.46

In summary, the statistical analysis of the achievement scores of these six groups found a significant difference at the .05 level of confidence between scores on each of the four tests analyzed. When the difference found in this question was compared to the difference found in question one where students were not divided into separate socio-economic classes, the difference in this analysis is much greater. This would indicate that there is a difference between the achievement of students of the two socio-economic classes.

When the difference found in these four sets of achievement scores were analyzed by use of the Mann-Whitney U test, all four scores revealed significant differences between Class I students and Class II students in both low and high participation groups. The difference found between

students with no participation and those with either low or high partici-
pation was not nearly so significant in this analysis as in earlier
questions when students were grouped in one class.

Question 5

Is there a direct relationship between the type of student
activities in which a student participates and the academic
achievement of students of certain socio-economic classes?

To test for significant differences in the academic achievement of
students involved in the various types of activities, students were
placed into sixteen categories. A category was set up for each of the
eight types of activities. These types were described earlier in
question two. These eight categories of activities were set up for stu-
dents in both Class I and Class II socio-economic groups and this gave a
total of sixteen different groups for this question.

When the Kruskal-Wallis test was applied to the California arith-
metic test scores achieved by students in all of the categories, an $\underline{H}$
of 44.7140 was found. This $\underline{H}$ with fourteen degrees of freedom reached
both the .05 and the .01 levels of confidence. Table XL, page 116,
shows the results of this test.

The calculations for the results of the California reading test for
all groups gave an $\underline{H}$ of 52.5267 which is significant at both the .05 and
the .01 levels of confidence. Table XLI, page 117, records these
results.

Scores on the STEP mathematics achievement test were analyzed and
an $\underline{H}$ of 46.8699 was found to be significant at both the .05 and the .01
levels of confidence. Table XLII on page 118 records these results.

The fourth set of scores, the STEP writing scores, gave a total $\underline{H}$ of 99.8642 which with fourteen degrees of freedom is also significant at both the .05 and .01 levels of confidence. The results of this test are shown on Table XLIII, page 119.

A summary of the Kruskal-Wallis findings pertaining to this question is recorded in Table XV.

TABLE XV

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF ACHIEVEMENT SCORES
RELATED TO THE TYPE OF ACTIVITY PARTICIPATED IN BY STUDENTS
OF DIFFERENT SOCIO-ECONOMIC CLASSES

	California Arithmetic	California Reading	STEP Mathematics	STEP Writing
Degrees of Freedom	15	15	15	15
$\underline{H}$ Score	44.7498	52.5267	46.8699	99.8642
Difference	Significant	Significant	Significant	Significant

In the analysis of this question, all of the sets of achievement scores tested by the Kruskal-Wallis one way analysis of variance were found to contain significant differences. The Mann-Whitney U test was applied to each of the four sets of scores to determine between which groups this difference existed.

In this problem, students were placed into one of sixteen categories according to the type of activity participation and the socio-economic class of the student. Comparisons were made between a total of one hundred twenty combinations of groups.

The Mann-Whitney U test applied to the California arithmetic test gave a total of thirty-one significant scores between various groups.

These groups were made up of students from each of the two socio-economic classes who had participated in one of the eight types or combinations of types of activities. The results of these comparisons are listed in Table XVI.

TABLE XVI

THE MANN-WHITNEY U COMPARISON OF CALIFORNIA ARITHMETIC SCORES
RELATED TO TYPE OF ACTIVITY PARTICIPATION BY STUDENTS
OF DIFFERENT SOCIO-ECONOMIC CLASSES

Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Z Score
I	0	0		II	V	L&H	2.91
I	I	L&H		II	0	0	2.59
I	I	L&H		II	II	L&H	1.98
I	I	L&H		II	III	L&H	2.38
I	I	L&H		II	V	L&H	3.79
I	II	L&H		II	0	0	2.23
I	II	L&H		II	III	L&H	2.39
I	II	L&H		II	IV	L&H	1.99
I	II	L&H		II	V	L&H	3.44
I	III	L&H		II	V	L&H	2.79
I	IV	L&H		II	0	0	2.44
I	IV	L&H		II	III	L&H	2.31
I	IV	L&H		II	IV	L&H	2.01
I	IV	L&H		II	IV	L&H	3.34
I	V	L&H		II	0	0	3.13
I	V	L&H		II	II	L&H	2.32
I	V	L&H		II	III	L&H	2.87
I	V	L&H		II	IV	L&H	2.24
I	V	L&H		II	V	L&H	4.28
I	Two	L&H		II	0	0	2.74
I	Two	L&H		II	II	L&H	2.06
I	Two	L&H		II	III	L&H	2.66
I	Two	L&H		II	IV	L&H	2.15
I	Two	L&H		II	V	L&H	3.89
I	Three	L&H		II	0	0	2.49
I	Three	L&H		II	III	L&H	2.30
I	Three	L&H		II	IV	L&H	2.01
I	Three	L&H		II	V	L&H	3.71
II	I	L&H		II	V	L&H	2.89
II	V	L&H		II	Two	L&H	3.17
II	V	L&H		II	Three	L&H	2.51

When the Mann-Whitney U test was applied to the various combinations of students who had taken the California reading achievement test, thirty-seven of the combinations attained the 1.96 z score which is necessary to be significant at the .05 level of confidence. These results are recorded in Table XVII on page 52.

Comparisons of all combinations of groups on the STEP mathematics scores found that forty of the one hundred twenty comparisons reached the required .05 level of confidence. These findings are recorded in Table XVIII, page 53.

When comparisons of the STEP writing scores were analyzed, fifty-four of the one hundred twenty combinations tested were found to be significant. The results of these comparisons are found in Table XIX on pages 54 and 55.

In summary, when achievement scores of students were divided into sixteen categories according to the type of activity participation and socio-economic class for this analysis, significant difference among groups was found to exist in all four sets of achievement test scores. This indicates that there is a significant difference in the achievement of students who had engaged in one of the various types of activities. Further analysis comparing single groups against other single groups revealed that the basic difference found is between students of different socio-economic classes.

TABLE XVII

THE MANN-WHITNEY U COMPARISON OF CALIFORNIA READING SCORES RELATED
TO TYPE OF ACTIVITY PARTICIPATION BY STUDENTS OF
DIFFERENT SOCIO-ECONOMIC CLASS

Socio-Economic Class	Type of Activity	Participation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Participation O-L-H	Z Score
I		O		II	IV	L&H	2.52
I		O		II	V	L&H	2.78
I	I	L&H		II	I	L&H	2.53
I	I	L&H		II	II	L&H	2.36
I	I	L&H		II	III	L&H	2.04
I	I	L&H		II	IV	L&H	2.95
I	I	L&H		II	V	L&H	3.52
I	II	L&H		II		O	1.98
I	II	L&H		II	I	L&H	2.84
I	II	L&H		II	II	L&H	2.59
I	II	L&H		II	III	L&H	2.49
I	II	L&H		II	IV	L&H	3.06
I	II	L&H		II	V	L&H	3.44
I	II	L&H		II	Three	L&H	2.19
I	III	L&H		II	IV	L&H	2.40
I	III	L&H		II	V	L&H	2.55
I	IV	L&H		II	I	L&H	2.00
I	IV	L&H		II	IV	L&H	2.35
I	IV	L&H		II	V	L&H	2.65
I	V	L&H		II	I	L&H	2.13
I	V	L&H		II	II	L&H	2.03
I	V	L&H		II	IV	L&H	2.88
I	V	L&H		II	V	L&H	3.24
I	Two	L&H		II		O	2.33
I	Two	L&H		II	I	L&H	3.27
I	Two	L&H		II	II	L&H	2.89
I	Two	L&H		II	III	L&H	2.59
I	Two	L&H		II	IV	L&H	3.37
I	Two	L&H		II	V	L&H	3.98
I	Two	L&H		II	Three	L&H	2.31
I	Three	L&H		II	I	L&H	1.99
I	Three	L&H		II	V	L&H	2.71
I	Three	L&H		II	V	L&H	3.10
II	IV	L&H		II	Two	L&H	2.25
II	IV	L&H		II	Three	L&H	1.99
II	V	L&H		II	Two	L&H	2.42
II	V	L&H		II	Three	L&H	2.11

TABLE XVIII

THE MANN-WHITNEY U COMPARISON OF STEP MATHEMATICS SCORES RELATED
TO TYPE OF ACTIVITY PARTICIPATION BY STUDENTS OF
DIFFERENT SOCIO-ECONOMIC CLASSES

Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Z Score
I		O		II		O	3.33
I		O		II	III	L&H	2.97
I		O		II	IV	L&H	2.89
I		O		II	V	L&H	3.62
I		O		II	Two	L&H	2.01
I		O		II	Three	L&H	2.51
I	I	L&H		II		O	3.49
I	I	L&H		II	III	L&H	2.92
I	I	L&H		II	IV	L&H	2.80
I	I	L&H		II	V	L&H	3.77
I	I	L&H		II	Two	L&H	2.55
I	II	L&H		II		O	3.12
I	II	L&H		II	III	L&H	2.74
I	II	L&H		II	IV	L&H	2.77
I	II	L&H		II	V	L&H	3.42
I	II	L&H		II	Three	L&H	2.42
I	III	L&H		II		O	2.78
I	III	L&H		II	III	L&H	2.34
I	III	L&H		II	IV	L&H	2.38
I	III	L&H		II	V	L&H	2.98
I	IV	L&H		II		O	2.10
I	IV	L&H		II	IV	L&H	2.05
I	IV	L&H		II	V	L&H	2.60
I	V	L&H		II		O	3.38
I	V	L&H		II	III	L&H	2.38
I	V	L&H		II	IV	L&H	2.57
I	V	L&H		II	V	L&H	3.67
I	V	L&H		II	Three	L&H	1.99
I	Two	L&H		II		O	3.49
I	Two	L&H		II	III	L&H	2.85
I	Two	L&H		II	IV	L&H	2.96
I	Two	L&H		II	V	L&H	3.85
I	Two	L&H		II	Three	L&H	2.37
I	Three	L&H		II		O	3.51
I	Three	L&H		II	III	L&H	2.74
I	Three	L&H		II	IV	L&H	2.58
I	Three	L&H		II	V	L&H	3.46
I	Three	L&H		II	Three	L&H	2.35
II		O		II	I	L&H	2.01
II	I	L&H		II	IV	L&H	2.40

TABLE XIX

THE MANN-WHITNEY U COMPARISON OF STEP WRITING SCORES TO TYPE OF
ACTIVITY PARTICIPATION BY STUDENTS OF DIFFERENT
SOCIO-ECONOMIC CLASSES

Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Z Score
I		O		I	IV	L&H	2.37
I		O		I	V	L&H	2.84
I		O		I	Two	L&H	3.10
I		O		II		O	2.44
I	I	L&H		I	V	L&H	2.35
I	I	L&H		I	Two	L&H	3.25
I	I	L&H		II		O	4.26
I	I	L&H		II	I	L&H	1.98
I	I	L&H		II	III	L&H	2.03
I	I	L&H		II	IV	L&H	2.83
I	I	L&H		II	V	L&H	2.57
I	II	L&H		II		O	3.70
I	II	L&H		II	I	L&H	2.22
I	II	L&H		II	III	L&H	2.22
I	II	L&H		II	IV	L&H	2.84
I	II	L&H		II	V	L&H	2.73
I	III	L&H		II		O	3.61
I	III	L&H		II	IV	L&H	2.77
I	III	L&H		II	V	L&H	2.39
I	IV	L&H		II		O	4.12
I	IV	L&H		II	I	L&H	2.81
I	IV	L&H		II	III	L&H	2.84
I	IV	L&H		II	IV	L&H	3.11
I	IV	L&H		II	V	L&H	3.13
I	IV	L&H		II	Three	L&H	2.20
I	V	L&H		II		O	5.97
I	V	L&H		II	I	L&H	3.55
I	V	L&H		II	III	L&H	3.58
I	V	L&H		II	IV	L&H	3.88
I	V	L&H		II	V	L&H	4.20
I	V	L&H		II	Two	L&H	2.42
I	V	L&H		II	Three	L&H	2.90
I	Two	L&H		I	Three	L&H	2.41
I	Two	L&H		II		O	5.35
I	Two	L&H		II	I	L&H	3.93
I	Two	L&H		II	II	L&H	2.48
I	Two	L&H		II	III	L&H	3.74
I	Two	L&H		II	IV	L&H	3.57
I	Two	L&H		II	V	L&H	4.24
I	Two	L&H		II	Two	L&H	3.00
I	Two	L&H		II	Three	L&H	3.41

TABLE XIX, continued

Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Z Score
I	Three	L&H		II		O	4.87
I	Three	L&H		II	I	L&H	2.37
I	Three	L&H		II	III	L&H	2.60
I	Three	L&H		II	IV	L&H	3.26
I	Three	L&H		II	V	L&H	3.22
II		O		II	I	L&H	2.48
II		O		II	II	L&H	2.25
II		O		II	Two	L&H	3.70
II		O		II	Three	L&H	3.75
II	IV	L&H		II	Two	L&H	2.38
II	IV	L&H		II	Three	L&H	2.42
II	V	L&H		II	Two	L&H	2.06
II	V	L&H		II	Three	L&H	1.96

Question 6

Is there a direct relationship between student involvement in
the student activities in terms of time devoted to the various
types of activities and the academic achievement of students
of certain socio-economic levels?

To analyze this question, a design was developed whereby each stu-

dent was placed in a category with the following information available:

(1) degree of participation; (2) type of activity in which the student

participated; and, (3) socio-economic class of the student. This

necessitated a total of thirty separate categories.

The Kruskal-Wallis one way analysis was applied to each of the four

achievement scores for each student and the following results were ob-

served.

For the California arithmetic achievement score, an $\underline{H}$ of 131.4648

was calculated. With the twenty-nine degrees of freedom for this problem

the H is significant at both the .05 and the .01 levels of confidence.
The results are given in Table XLIV, pages 120 and 121.

The calculation for the California reading scores revealed an H of
73.0131 which is also significant at both the .05 and the .01 levels of
confidence. Table XLV, pages 122 and 123, records the results of these
calculations.

When the differences among the scores of students on the STEP mathe-
matics scores were analyzed, an H of 28.3712 was reached. With the
twenty-nine degrees of freedom required for this test, it was found that
this H is not significant at the .05 level of confidence. The results
of this analysis are shown on Table XLVI, pages 124 and 125.

The last of the tests, the STEP writing test, produced an H of
104.0608 which with twenty-nine degrees of freedom is significant at
both the .05 and the .01 levels of confidence. These results are re-
corded in Table XLVII, pages 126 and 127.

In this question, three of the four sets of achievement scores
tested by the Kruskal-Wallis one way analysis of variance revealed a
significant difference among the groups tested. The STEP mathematics
scores did not reach the .05 level of confidence. A summary of this
analysis is presented in Table XX.

The students were divided into groups according to degree of par-
ticipation, types of activity participation, and socio-economic class
in this problem. From this arrangement, thirty different groups were
formed. The Mann-Whitney U comparison was administered to all possible
combinations of single groups. Only those z scores that were significant
are recorded in the tables.

TABLE XX

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF ACHIEVEMENT SCORES
RELATED TO THE DEGREE OF PARTICIPATION IN THE VARIOUS TYPES OF
ACTIVITIES BY STUDENTS OF DIFFERENT SOCIO-ECONOMIC CLASSES

	California Arithmetic	California Reading	STEP Mathematics	STEP Writing
Degrees of Freedom	29	29	29	29
H Score	131.4648	73.0131	28.3712	104.0608
Difference	Significant	Significant	Not Significant	Significant

The Mann-Whitney U comparison for the California arithmetic test found eighty-seven comparisons that yielded a z score equal to 1.96 which would be significant at the .05 level of confidence. Table XXI on pages 58 and 59 gives the results of these comparisons.

Comparisons between single groups for the California reading scores gave seventy-four comparisons which are significant. The results of these findings are recorded in Table XXII, pages 60 and 61.

For the last of the achievement scores, the STEP writing scores, comparisons were made by the Mann-Whitney U of all possible combinations. Of these comparisons, there were a total of one hundred fourteen which reached the 1.96 z score required to be significant. These comparisons are shown in Table XXIII, pages 62, 63 and 64.

In summary, the results of the analysis reveal that three of the four sets of achievement scores contain a significant difference. Only the STEP mathematics scores did not show significant differences. The Mann-Whitney comparison of each of the various single groups compared to other single groups revealed many significant differences. Further examination of the results of the many comparisons found differences

TABLE XXI

THE MANN-WHITNEY U COMPARISON OF CALIFORNIA ARITHMETIC SCORES
RELATED TO THE DEGREE OF PARTICIPATION IN THE VARIOUS
TYPES OF ACTIVITIES BY STUDENTS OF DIFFERENT
SOCIO-ECONOMIC CLASSES

Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Z Score
I	I	L		I	V	H	2.34
I	I	H		II		O	2.53
I	IV	H		II		O	2.10
I	V	L		I	V	H	2.12
I	V	H		II		O	3.62
I	V	H		II	I	L	2.01
I	V	H		II	I	H	2.30
I	V	H		II	II	L	2.50
I	V	H		II	II	H	2.72
I	Two	H		II		O	2.60
I	Three	L		II		O	2.09
I	Three	H		II		O	2.02
I		O		II	III	H	2.06
I		O		II	IV	L	2.10
I		O		II	V	L	2.26
I		O		II	V	H	2.69
I	I	L		II	V	L	2.44
I	II	L		II	V	H	2.52
I	I	H		II	III	L	2.13
I	I	H		II	IV	L	2.15
I	I	H		II	V	L	2.80
I	I	H		II	V	H	2.82
I	II	L		II	IV	L	2.00
I	II	L		II	V	L	2.31
I	II	L		II	V	H	2.39
I	II	H		II	III	H	2.08
I	II	H		II	IV	L	2.00
I	II	L		II	V	L	2.31
I	II	L		II	V	H	2.39
I	II	H		II	III	H	2.08
I	II	H		II	IV	L	2.00
I	II	H		II	V	L	2.39
I	II	H		II	V	H	2.58
I	III	L		II	V	H	2.10
I	III	H		II	IV	H	2.05
I	IV	L		II	III	H	2.13
I	IV	L		II	IV	L	1.96
I	IV	L		II	V	H	2.33
I	IV	L		II	V	H	2.38
I	IV	H		II	IV	L	2.03
I	IV	H		II	V	L	2.27
I	IV	H		II	V	H	2.43

TABLE XXI, continued

Socio-Economic Class	Type of Activity	Participation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Participation O-L-H	Z Score
I	V	L		II	IV	L	2.00
I	V	L		II	V	L	2.43
I	V	L		II	V	H	2.72
II	III	L		II	V	H	2.15
II	V	L		II	Two	H	2.32
II	V	H		II	Two	L	2.17
II	V	H		II	Two	H	2.57
I	V	H		II		O	3.62
I	V	H		II	I	L	2.01
I	V	H		II	I	H	2.30
I	V	H		II	II	L	2.50
I	V	H		II	II	H	2.72
I	V	H		II	III	L	2.93
I	V	H		II	III	H	3.24
I	V	H		II	IV	L	2.91
I	V	H		II	V	L	3.73
I	V	H		II	V	H	3.55
I	V	H		II	Two	L	3.20
I	V	H		II	Three	H	2.81
I	Two	L		II	V	L	2.01
I	Two	L		II	V	H	2.40
I	Two	H		II		O	2.60
I	Two	H		II	III	L	2.14
I	Two	H		II	III	H	2.59
I	Two	H		II	IV	L	2.56
I	Two	H		II	V	L	3.15
I	Two	H		II	V	H	3.18
I	Two	H		II	Two	L	2.06
I	Three	L		II		O	2.09
I	Three	L		II	III	H	2.24
I	Three	L		II	IV	L	2.37
I	Three	L		II	V	L	2.39
I	Three	L		II	V	H	2.65
I	Three	H		II		O	2.02
I	Three	H		II	III	H	2.05
I	Three	H		II	IV	L	2.09
I	Three	H		II	V	L	2.66
I	Three	H		II	V	H	2.74
II	I	H		II	V	L	2.16
II	I	H		II	V	H	2.32
II	III	L		II	V	H	2.15
II	V	L		II	Two	H	2.32
II	V	H		II	Two	L	2.17
II	V	H		II	Two	H	2.57
II	V	H		II	Three	H	2.15

TABLE XXII

THE MANN-WHITNEY U COMPARISON OF CALIFORNIA READING SCORES RELATED
TO THE DEGREE OF PARTICIPATION IN THE VARIOUS TYPES OF
ACTIVITIES BY STUDENTS OF DIFFERENT
SOCIO-ECONOMIC CLASSES

Socio-Economic Class	Type of Activity	Participation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Participation O-L-H	Z Score
I		O		II	I	L	2.03
I		O		II	III	H	2.58
I		O		II	IV	L	2.02
I		O		II	V	L	2.72
I	I	L		II	I	L	2.36
I	I	L		II	III	H	2.66
I	I	L		II	IV	L	2.26
I	I	L		II	V	L	2.85
I	I	H		II	I	L	2.17
I	I	H		II	III	H	2.59
I	I	H		II	IV	L	2.11
I	I	H		II	IV	H	1.97
I	I	H		II	V	L	2.87
I	II	L		II	I	L	2.08
I	II	L		II	III	H	2.33
I	II	L		II	IV	L	2.29
I	II	L		II	V	L	2.55
I	II	L		II	V	H	2.06
I	II	H		II	I	L	2.24
I	II	H		II	III	H	2.56
I	II	H		II	IV	L	2.10
I	II	H		II	IV	H	2.13
I	II	H		II	V	L	2.76
I	II	H		II	Three	L	1.99
I	III	L		II	V	L	2.01
I	III	H		II	III	H	2.45
I	III	H		II	IV	L	2.04
I	IV	L		II	III	H	2.28
I	IV	H		II	IV	L	2.35
I	IV	H		II	V	L	2.38
I	IV	H		II	V	H	1.96
I	V	L		I	V	H	2.58
I	V	L		I	Two	H	2.19
I	V	L		II	III	H	1.97
I	V	L		II	IV	L	2.46
I	V	H		II		O	2.46
I	V	H		II	I	L	3.07
I	V	H		II	I	H	2.67

TABLE **XXII**, continued

Socio-Economic Class	Type of Activity	Participation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Participation O-L-H	Z Score
I	V	H		II	II	L	2.24
I	V	H		II	II	H	2.54
I	V	H		II	III	H	3.02
I	V	H		II	IV	L	2.61
I	V	H		II	IV	H	2.72
I	V	H		II	V	L	3.76
I	V	H		II	V	H	2.75
I	V	H		II	Three	H	2.91
I	Two	L		II	I	L	2.30
I	Two	L		II	III	H	2.41
I	Two	L		II	IV	L	2.20
I	Two	L		II	IV	H	2.00
I	Two	L		II	V	L	2.61
I	Two	L		II	V	H	1.97
I	Two	H		II		O	2.06
I	Two	H		II	I	L	2.98
I	Two	H		II	I	H	2.53
I	Two	H		II	II	L	2.28
I	Two	H		II	II	H	2.19
I	Two	H		II	III	H	2.76
I	Two	H		II	IV	L	2.61
I	Two	H		II	IV	H	2.43
I	Two	H		II	V	L	3.52
I	Two	H		II	V	H	2.53
I	Two	H		II	Three	H	2.69
I	Three	H		II	I	L	2.10
I	Three	H		II	III	H	2.85
I	Three	H		II	IV	L	2.28
I	Three	H		II	V	L	2.98
II	III	L		II	III	H	2.02
II	V	L		II	Two	H	2.64
II	III	H		II	Two	H	2.47
II	III	H		II	Three	L	2.28
II	IV	L		II	Two	H	2.31
II	IV	L		II	Three	L	2.35
II	V	L		II	Two	H	2.64

TABLE XXIII

THE MANN-WHITNEY U COMPARISON OF STEP WRITING SCORES RELATED TO THE
DEGREE OF PARTICIPATION IN THE VARIOUS TYPES OF ACTIVITIES
FOR STUDENTS OF DIFFERENT SOCIO-ECONOMIC CLASSES

Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Z Score
I		O		I	I	L	2.05
I		O		I	IV	H	2.27
I		O		I	V	H	3.42
I		O		I	Two	L	2.15
I		O		I	Two	H	2.94
I		O		II		O	2.44
I		O		II	IV	L	2.37
I	I	L		I	V	H	2.61
I	I	L		I	Two	H	2.26
I	I	L		II		O	3.77
I	I	L		II	I	H	2.26
I	I	L		II	III	L	2.00
I	I	L		II	III	H	1.96
I	I	L		II	V	L	2.74
I	I	H		I	V	H	3.10
I	I	H		I	Two	L	2.05
I	I	H		I	Two	H	2.72
I	I	H		II		O	3.02
I	I	H		II	IV	L	2.39
I	II	L		II		O	3.23
I	II	L		II	I	H	2.10
I	II	L		II	III	H	2.02
I	II	L		II	IV	L	2.73
I	II	L		II	V	L	2.47
I	II	L		II	V	H	2.06
I	II	L		II	Three	H	1.97
I	II	H		II		O	2.29
I	II	H		II	IV	L	2.19
I	III	L		II		O	2.45
I	III	H		I	V	H	2.71
I	III	H		I	Two	H	2.17
I	III	H		II		O	3.00
I	III	H		II	IV	L	2.85
I	IV	L		II		O	2.61
I	IV	L		II	IV	L	2.44
I	IV	H		II		O	3.44
I	IV	H		II	I	L	2.00
I	IV	H		II	I	H	2.47
I	IV	H		II	II	L	2.08
I	IV	H		II	III	L	2.46
I	IV	H		II	III	H	2.21

TABLE **XXIII**, continued

Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Z Score
I	IV	H		II	IV	L	2.67
I	IV	H		II	V	L	2.76
I	IV	H		II	V	H	2.19
I	IV	H		II	Two	L	2.17
I	IV	H		II	Three	H	2.29
I	V	L		I	V	H	2.69
I	V	L		I	Two	H	1.97
I	V	L		II		O	4.53
I	V	L		II	I	H	2.13
I	V	L		II	III	L	2.12
I	V	L		II	III	H	2.04
I	V	L		II	IV	L	3.16
I	V	L		II	V	L	2.89
I	V	H		I	Three	L	2.28
I	V	H		I	Three	H	2.00
I	V	H		II		O	5.04
I	V	H		II	I	L	2.37
I	V	H		II	I	H	4.01
I	V	H		II	II	L	2.54
I	V	H		II	III	L	3.06
I	V	H		II	III	H	3.34
I	V	H		II	IV	L	3.21
I	V	H		II	IV	H	2.78
I	V	H		II	V	L	4.05
I	V	H		II	V	H	2.97
I	V	H		II	Two	L	3.18
I	V	H		II	Two	H	2.26
I	V	H		II	Three	H	4.01
I	Two	L		II		O	3.25
I	Two	L		II	I	L	2.01
I	Two	L		II	I	H	2.44
I	Two	L		II	III	L	2.14
I	Two	L		II	III	H	2.01
I	Two	L		II	IV	L	2.20
I	Two	L		II	V	L	2.64
I	Two	L		II	V	H	2.31
I	Two	L		II	Two	L	2.18
I	Two	L		II	Three	H	2.34
I	Two	H		I	Three	L	2.02
I	Two	H		II		O	4.85
I	Two	H		II	I	L	2.20
I	Two	H		II	I	H	3.64
I	Two	H		II	II	L	2.17
I	Two	H		II	III	L	3.11
I	Two	H		II	III	H	2.94

TABLE XXIII, continued

Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Compared to	Socio-Economic Class	Type of Activity	Partici-pation O-L-H	Z Score
I	Two	H		II	IV	L	3.21
I	Two	H		II	IV	H	2.50
I	Two	H		II	V	L	3.67
I	Two	H		II	V	H	2.83
I	Two	H		II	Two	L	2.96
I	Two	H		II	Three	H	3.51
I	Three	L		II		O	2.36
I	Three	L		II	IV	L	2.47
I	Three	H		II		O	4.65
I	Three	H		II	I	H	2.11
I	Three	H		II	III	L	2.20
I	Three	H		II	IV	L	3.09
I	Three	H		II	V	L	2.97
I	Three	H		II	V	H	2.07
II		O		II	I	H	2.54
II		O		II	II	H	3.08
II		O		II	IV	L	2.31
II		O		II	Two	H	4.06
II		O		II	Three	H	3.67
II	I	H		II	IV	L	2.31
II	II	H		II	V	L	2.22
II	IV	L		II	Two	H	2.68
II	II	H		II	IV	L	2.73
II	II	L		II	V	L	2.22
II	III	L		II	Two	H	1.99
II	IV	L		II	Two	H	3.01
II	IV	L		II	Three	H	2.88
II	V	L		II	Two	H	2.68

between high and low participation in the various types; however, in most instances the difference was between students from different socio-economic classes.

Summary

Twenty-four comparisons of groups and subgroups were made using the Kruskal-Wallis one way analysis of variance technique. Sixteen of the

twenty-four tests yielded an $\underline{H}$ score significant at the .05 level of
confidence. These significant differences were found in:

Question 1: Concerning the degree of participation for all
students on the California reading and STEP writing scores.

Question 2: Concerning the type of activity participation
for all students on the California reading and STEP writing
scores.

Question 3: Concerning both degree of participation and
type of activity participation for all students on the STEP
writing scores.

Question 4: Concerning degree of participation for students
of different socio-economic class on all four sets of scores--
the California arithmetic, California reading, STEP mathe-
matics and STEP writing scores.

Question 5: Concerning type of participation for students
of different socio-economic classes on all four sets of
scores--the California arithmetic, California reading, STEP
mathematics and STEP writing scores.

Question 6: Concerning degree of participation and type of
participation for students of different socio-economic
classes on the California arithmetic, California reading
and STEP writing scores.

Each Kruskal-Wallis test that revealed a significant difference
existed was further examined by comparing each of the groups in each of
the questions by applying the Mann-Whitney U test. In this comparison,
significant differences were found to exist in several instances.

The conclusions and implications for further research on these
findings are presented in Chapter V.

CHAPTER V

INTERPRETATIONS AND CONCLUSIONS

The objective of this study was to determine if there is a relation-
ship of involvement in school activities to the academic achievement of
junior high school students. In order to conduct this study, it was
deemed necessary to approach the matter in the form of six basic ques-
tions. This chapter will contain the findings on each of the six basic
questions, the formulated conclusions based on these findings, and the
identified areas for further research.

The first question was: Is there a direct relationship between
student involvement in the student activities in terms of time devoted
to all the activities and the academic achievement of the student? In
an attempt to answer this question, three groups were studied. There
were students with no participation, students with low participation in
the activities, and students with high participation in the activities.
The statistical test applied found that a significant difference at the
.05 level of confidence existed between these groups.

One achievement test taken before the three years of participation
and one achievement test taken after the period contained this differ-
ence. A further examination of these differences by using the
Mann-Whitney U test found that most of this difference existed between
students with no participation and those with high participation. In
one test differences existed between students with no participation and

students with low participation. From these findings it would appear that, although the difference after participation in the activities is greater and there is a significant difference between the groups, this difference cannot be attributed to the degree of participation in the activity program of the school.

Question two: Is there a direct relationship between the type of student activities in which a student participated and the academic achievement of the student? To analyze this question, students were placed into one of eight categories according to the type of activity in which they participated. The eight types or categories were: (1) no participation; (2) Type I, physical development activities; (3) Type II, intellectual development activities; (4) Type III, cultural development activities; (5) Type IV, school contribution activities; (6) Type V, school and community service activities; (7) participation in two types of activities; and, (8) participation in three or more types of activities.

Analysis of these groups found significant differences exist over-all in achievement scores on two of the four tests--one before the participation and one after the three year period of participation. An analysis comparing all groups that revealed this significant difference disclosed that much of this total difference exists between those who did not participate in any activity and those who did participate in one or more of the various types of activities. Significant differences were found to exist between no participation and each of the various types of activities.

Question three: Is there a direct relationship between student involvement in the student activities in terms of time devoted to each

of the various types of activities and the academic achievement of the student? In the analysis of this question, students were placed in one of fifteen categories according to the degree of participation in the various types of activities. Students were grouped in either no participation or in one of the eight classifications of activities at low or high participation. This gave a total of fifteen groups.

When the scores of these groups were analyzed, only one set of achievement scores, the STEP writing scores, provided a difference significant at the .05 level of confidence. From this it is concluded that although some difference does exist, it cannot be assumed that the degree of participation in the various types of activities had any great effect on the academic achievement of students.

Comparisons between each of the single groups found that significant differences existed between students with no participation and those who participated in any of the other seven types of activities. In most cases this significant difference was found in both low and high participation. These findings would indicate that the achievement of students who do not participate in the activity program is significantly different from the achievement of students who do participate in the activities. Although differences were found among other groups in this problem, the primary difference appears to be between those who do participate and those who do not participate.

Question four: Is there a direct relationship between student involvement in the student activities in terms of time devoted to all activities and the academic achievement of students of certain socio-economic levels? In the analysis of this question, students were placed into one of six categories or groups. They are: (1) Class I, no

participation; (2) Class I, low participation; (3) Class I, high partici-
pation; (4) Class II, no participation; (5) Class II, low participation;
and, (6) Class II, high participation.

The statistical analysis of the achievement scores of these six
groups found a significant difference at the .05 level of confidence be-
tween scores on each of the four tests analyzed.

When the difference found in this question was compared to the
difference found in question one where students were not divided into
separate socio-economic classes, the difference in this analysis is much
greater. This would indicate that there is a difference between the
achievement of students of the two socio-economic classes. This differ-
ence cannot be attributed to participation alone since the difference
was present both before and after the period of participation in the
activity program. Therefore, it would not be advisable to assume that
any degree of participation in the activity program has a significant
effect on the academic achievement of students.

When the difference found in these four sets of achievement scores
were analyzed by use of the Mann-Whitney U test, all four scores revealed
significant differences between Class I students and Class II students in
both low and high participation groups. The difference found between
students with no participation and those with either low or high partici-
pation was not nearly so significant in this analysis as in earlier
questions when students were grouped in one class. From this group of
comparisons, it can be concluded that there is a significant difference
in the academic achievement of students of different socio-economic
classes when different degrees of participation are tested. However,

although this difference exists it cannot be assumed that this differ-
ence is as a result of participation in the activity program.

Question five: Is there a direct relationship between the type of
student activities in which a student participates and the academic
achievement of students of certain socio-economic levels? When achieve-
ment scores of students were divided into sixteen categories according
to the type of activity participation and socio-economic class for this
analysis, significant difference among groups was found to exist in all
four sets of achievement test scores. This indicates that there is a
significant difference in the achievement of students who had engaged in
one of the various types of activities. Since this difference existed
both before participation and also after the three year period of par-
ticipation, it can be concluded that participation in some type of
activity did not have any significant effect on the academic achievement
of students.

Further analysis comparing single groups against other single
groups revealed that the basic difference found is between students of
different socio-economic classes.

From this group of comparisons it can be concluded that there is
significant difference in the achievement of students of different
socio-economic classes but that the type of activity participation does
not appear to make a significant difference in the achievement of stu-
dents.

Question six: Is there a direct relationship between student
involvement in the student activities in terms of time devoted to the
various types of activities and the academic achievement of certain
socio-economic levels? The scores of students in this analysis were

divided into thirty separate categories with this information available for each student: (1) degree of participation; (2) type of activity participation; and (3) socio-economic class. The results of the analysis reveal that three of the four sets of achievement scores contain a significant difference. Only the STEP mathematics scores did not show significant differences.

It can be concluded that participation in the activity program has little or no effect on the academic achievement of students since differences existed between groups in this analysis before the period of participation.

The Mann-Whitney U comparison of each of the various single groups compared to other single groups revealed many significant differences. Further examination of the results of the many comparisons found differences between high and low participation in the various types; however, in most instances the difference was between students from different socio-economic classes. From these results it can be concluded that the principal difference is not due to participation in the activities or to the type of activity but can be attributed to the difference in the socio-economic background of the student.

Summary of Findings

A summary of the findings in the study include:

(1) Significant differences existed on eight of the twelve sets of achievement scores before the students participated in the activity program of the junior high school and significant differences were also found in eight of the twelve sets of scores after the period of participation. Thus it is concluded that although the difference found

after participation was greater than before participation, differences in the academic achievement of students cannot be attributed to participation in the activity program.

(2) The principal difference in scores achieved by all students when related to degree of participation appears to be between students who do not participate and students who take part in some activity; otherwise, the degree of participation does not appear to affect the achievement of students to any great extent.

(3) The type of activity in which a student participates does not appear to have any significant effect on the academic achievement of students.

(4) The differences found when students from one socio-economic class are compared to students of the other socio-economic class would indicate that there is a great deal of difference in the academic achievement of students from these two classes. It is not possible, without further investigation, to determine if participation in the activity program has any significant effect on the scholastic achievement of these students.

Implications for Future Research

This writer had no methods other than those used in this study to gather information concerning the activity program. It is recommended that in order to more accurately evaluate the effects of participation in the activity program, a future study of selected groups of students be undertaken. By matching two or more controlled groups over a three year period of participation, by following a regular testing program, and by controlling the participation of the groups, it would appear that

much more valid results could be obtained. A person or group of persons in the school system could best undertake such a study since continual observation would be desirable.

Since the results of this study offer no conclusive evidence that participation in the activity program has significant effects on the academic achievement of students, future research should be conducted to determine if the activity program in the junior high school is contributing to the educational advancement of the student. Other purposes of the activity program should be investigated to determine if the student activities can be justified in terms of time and cost expended by all students and adults involved.

Another area for future research would be an investigation into the causes of the difference found in the academic achievement of students from the two socio-economic classes. The difference between the two socio-economic groups was the most consistently significant difference found in the statistical analysis of this study.

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APPENDIX A

TYPES OF ACTIVITY CLUBS OR GROUPS INCLUDED IN THE STUDY

Physical Development	Intellectual Development	Cultural Development	General School Organization	School and Community Service
Football	Medical Careers	Vocal Music (boys)	Student Council	Junior Hi-Y
Basketball	Honor Society	Vocal Music (girls)	Newspaper Staff	Y-Teens
Baseball	Library Club	Future Journalists of	Yearbook Staff	Pep Clubs
Intramurals (boys)	French Club	America	Future Teachers	Safety Council
Intramurals (girls)	Latin Club	Orchestra	Student Advisory	Junior Red Cross
Archery	Art Club	Morning Inspiration	Committee	Cheerleaders
Bowling	Tape Recorder Club	Hi-Notes (vocal)		Majorettes
Wrestling	Chess Club	Band		
Track	Leather Club	Girl Scouts		
Girls "O" Club	English Club	Stamp Club		
Boys "O" Club	Science Club	Peacock Club		
Swim Club (girls)	Social Studies Club	Sigma Rho Sigma		
Girls Recreation	Hobby Craft Club	Journalism Club		
Association	Spanish Club	Boy Scouts		
Tennis	Slide Rule Club	Thespians		
Golf	Coin Collectors Club	Speech Club		
Boys Recreation	Thrift Club	Drama Club		
Club	Model Aircraft Club	Junior Classical		
Creative Dancing	Boat Club	League		
Swimming (boys)	Future Homemakers	Debate Club		
Rifle Club	New Homemakers of			
Drill Team	America			
	Greek Club			
	Photography Club			
	Electronics Club			
	Student Announcers			
	4-H Club			

APPENDIX B

STATUS OF THE JUNIOR HIGH SCHOOL ACTIVITY PROGRAM

Name of school: _____

Please list all activities offered. Indicate those activities offered
during regular school hours as a part of the schedule and those offered
either before or after regular school hours.

Are there restrictions as to how many activities in which a student may
participate? _____ If so, what are the restrictions?

Are students required to participate in some activity? _____

Are any students unable to participate in the activity program because
of work, bus schedules, or other reasons?

SOCIO-ECONOMIC CLASS, PARTICIPATION SCORES, AND ACHIEVEMENT SCORES OF STUDENT SAMPLE

Student	Socio-Economic Class	Participation Score by Type of Activity						Total Score	Score by Rank			Major Type Activity	California Achievement		STEP Achievement	
		O	I	II	III	IV	V		O	L	H		Read.	Arith.	Math.	Writing
1	2						6	6	x			V	94	66	277	292
2	2			4	12	8		24			x	Three	93	69	277	290
3	1		20	8				28			x	I	96	66	274	275
4*	2														274	287
5	2		35				8	43			x	I	89	72	274	283
6	2			3			6	9	x			Two	63	68	260	264
7*	1														278	280
8**	2		10	4			8	22			x	Three			280	275
9	1						8	8	x			V	63	58	263	274
10	2			23	24		34	81			x	Three	51	56	251	283
11	2			18			22	40			x	Two	80	55	270	277
12*	2															
13	2		35	2			4	41			x	I	51	66	260	260
14	1	x						0	x			O	96	56	272	247
15	2		10				20	30			x	Two	87	58	275	277
16*																
17	2			16			6	22			x	II	61	52	260	283
18	2			18			2	20			x	II	71	65	242	281
19	2						8	8	x			V	89	62	263	295
20	2				30			30			x	III	74	68	251	287
21**	1		25					25			x	I			278	277
22	2				16			16	x			III	50	71	242	258
23	1			6			18	24			x	V	111	78	272	322
24	1			6				6	x			II	111	105	300	304
25	1		2		6	8	38	54			x	V	105	97	295	306

*Did not attend junior high in system
**No scores available

Student	Socio-Economic Class	O	I	II	III	IV	V	Total Score	O	L	H	Major Type Activity	Read.	Arith.	Math.	Writing
26*	1															
27	2		32			22	3	57			x	Three	96	66	274	287
28	1			12		3	44	59			x	V	104	110	295	328
29*	1															
30	1				2	9	27	38			x	V	104	86	284	297
31	1			6			27	33			x	V	109	81	272	300
32*																
33	1			24	4	4	1	33			x	II	114	83	282	304
34	2		35		24	4		63			x	Three	98	67	285	281
35	1						6	6		x		V	91	79	285	284
36	2		15			4		19		x		I	87	83	286	299
37	1		10					10		x		I	94	83	290	306
38	1					16	28	44			x	Two	94	82	284	311
39	1				24		18	42			x	Two	114	79	283	309
40	1		4	6			32	42			x	V	89	77	287	289
41	1			6		4	18	28			x	Three	102	69	289	284
42	2			6	3	4	21	34			x	Three	106	74	277	286
43	1			12		4	24	40			x	Three	105	81	295	304
44*	1															
45*	1															
46	1			3	2			5	x			Two	103	87	287	328
47	1				20			20			x	III	76	58	275	281
48*	2															
49	2			12			6	18	x			Two	80	84	285	290
50	1			5	22			27			x	IV	110	85	278	293
51	1		37		3			40			x	I	98	80	280	320
52	1			6		12	25	43			x	Three	82	69	286	293
53	1		30	9	6	16	14	75			x	Three	110	87	299	297
54	1			6	10		27	43			x	Three	102	61	283	297
55	1		40	12				52			x	I	115	105	302	290
56*	1														274	280
57	1				6		6	12	x			Two	107	83	289	315

Student	Socio-Economic Class	Participation Score by Type of Activity						Total Score	Score by Rank			Major Type Activity	California Achievement		STEP Achievement	
		O	I	II	III	IV	V		O	L	H		Read.	Arith.	Math.	Writing
58	2			6				6	x			II	115	84	290	286
59	1				4	9	18	31			x	Three	107	86	290	306
60*	1														278	315
61	1		60			32	2	94			x	Three	113	62	300	297
62	1			6		36		42			x	IV	73	64	230	289
63	1					10		10		x		IV	99	72	277	281
64	2			6				6		x		II	90	66	284	313
65	2		8	8	6	40		62			x	Three	87	84	287	297
66	2		20			16		36			x	Two	89	83	297	309
67	1				14			14		x		III	107	69	283	304
68**	2		20					20			x	I			290	287
69	2			22		4		26			x	II	86	74	294	306
70	1		25					25			x	I	105	94	292	304
71	2		35					35			x	I	102	84	278	286
72	1		15					15		x		I	114	69	282	289
73	2					8		8		x		IV	64	60	283	260
74	2					4		4		x		IV	64	55	265	262
75	1				24		8	32			x	III	94	64	284	284
76	1		60			24		84			x	I	102	86	283	274
77	1				8	12		20			x	Two	119	86	287	311
78	2				30			30			x	III	71	74	274	271
79	2		20					20			x	I	89	72	230	262
80	2				16			16		x		III	87	51	230	287
81	2	x						0	x			0	95	43	230	258
82	1				16	20	6	42			x	Three	116	80	277	309
83*															286	293
84	1					18	18	36			x	Two	107	83	274	292
85	2	x						0	x			0	94	83	286	293
86	1		20					20			x	I	100	80	289	287
87	1				20			20			x	III	87	67	283	290
88	1		10			8		18		x		Two	106	54	285	306
89	1		25					25			x	I	97	79	286	297

Student	Socio-Economic Class	Participation Score by Type of Activity						Total Score	Score by Rank			Major Type Activity	California Achievement		STEP Achievement	
		O	I	II	III	IV	V		O	L	H		Read.	Arith.	Math.	Writing
90	2		24			8		32			x	I	106	69	268	289
91**																
92	2		20				1	21			x	I	95	81	251	284
93	2						3	3		x		V	104	54	272	251
94	1		8					8		x		I	78	64	274	275
95	1		16					16		x		I	104	74	291	287
96	1					20	37	57			x	Two	110	87	287	313
97	1		15				12	27			x	Two	114	80	290	311
98	1	x						0	x			O	104	66	285	304
99	1				16			16		x		III	117	84	296	320
100	2		10					10		x		I	80	69	278	274
101	1		25	8		24	16	73			x	Three	103	84	294	309
102*	2														274	286
103	2				4	8		12		x		Two	112	82	274	309
104**																
105	1		15				12	27			x	Two	100	92	282	300
106	2	x						0	x			O	74	68	251	271
107	1					8		8		x		IV	118	81	280	305
108**																
109	2		10					10		x		I	92	75	290	262
110	1					8		8		x		IV	96	81	286	295
111	2				38	10	20	68			x	Three	99	80	292	313
112	2					4		4		x		IV	68	77	260	278
113	2		45					45			x	I	108	100	286	299
114	2	x						0	x			O	112	72	274	254
115	1		15					15		x		I	93	64	274	289
116	1						24	24			x	V	108	91	277	306
117	2			6				6		x		II	93	75	294	300
118	1			14		2	6	22			x	II	123	79	282	311
119	2		16		30		6	52			x	Three	94	69	287	280
120	1			3				3		x		II	101	84	280	292
121	2				8			8		x		III	107	91	268	274

Student	Socio-Economic Class	Participation Score by Type of Activity						Total Score	Score by Rank			Major Type Activity	California Achievement		STEP Achievement	
		O	I	II	III	IV	V		O	L	H		Read.	Arith.	Math.	Writing
122	1						6	6			x	V	75	73	278	281
123	2	x						0	x			O	99	77	295	290
124	2						3	3		x		V	32	50	269	268
125	1	x						0	x			O	90	60	274	268
126	1		20	8		16	24	68			x	Three	93	97	300	289
127	2				16		18	34			x	Two	123	81	282	297
128	2				8		14	22			x	Two	107	83	284	304
129	1	x						0	x			O	94	59	277	280
130	2			2	16			18		x		III	106	84	286	299
131	2		17				5	22			x	I	100	76	289	287
132	1					18	6	24			x	IV	95	60	270	275
133	1					36	6	42			x	IV	122	93	278	306
134	1		45			10		55			x	I	98	92	294	287
135**															285	290
136	2		5		4			9		x		Two	110	69	274	281
137	2				24		16	40			x	Two	105	92	289	299
138	2				16	8		24			x	Two	99	94	303	317
139	1		10		4		2	16		x		Three	107	91	275	290
140**															296	317
141	2	x						0	x			O	103	71	291	297
142	1						6	6		x		V	70	59	268	293
143	1			9	16	10	11	46			x	Three	117	76	287	295
144	2		30					30			x	I	67	61	284	278
145	2		10				36	46			x	V	107	77	292	299
146	1				16		6	22			x	III	101	80	287	313
147	2				16		2	18		x		III	90	75	289	309
148	1			8	2			10		x		II	111	99	289	311
149	2					18		18		x		IV	104	74	263	271
150	2				8		4	12		x		Two	109	74	277	295
151	2						3	3		x		V	80	85	263	283
152	2	x						0	x			O	100	89	263	271
153	1						2	2		x		V	94	73	287	277

Student	Socio-Economic Class	Participation Score by Type of Activity						Total Score	Score by Rank			Major Type Activity	California Achievement		STEP Achievement	
		O	I	II	III	IV	V		O	L	H		Read.	Arith.	Math.	Writing
154	1			5	28		9	42			x	Three	89	78	282	278
155	1						16	16		x		V	126	75	270	299
156	1						12	12		x		V	94	79	277	284
157*															291	275
158*																
159	1			20		3	3	26			x	II	103	85	275	264
160*															283	295
161	2						21	21			x	V	99	64	277	278
162	2	x						0	x			O	101	87	299	275
163	2				3	6	9	18		x		Three	107	97	268	297
164	1			5	2	2		9		x		Three	83	83	282	286
165	2				1		2	3		x		Two	123	83	303	300
166*															292	292
167	2			5		3		8		x		Two	96	71	278	283
168	1			21				21			x	II	95	69	287	277
169*															286	306
170	2		25					25			x	I	87	69	280	289
171	1		15					15		x		I	110	84	294	293
172**															280	284
173*															290	309
174	2					22	9	31			x	Two	94	83	275	277
175	1					6	4	10		x		Two	101	82	286	306
176	1		12	4	20	12	38	86			x	Three	98	72	272	266
177	2	x						0	x			O	61	64	263	248
178	1			4	6	6	26	42			x	Three	99	81	280	300
179	1		13					13		x		I	108	81	289	289
180	1			4	17		23	44			x	Three	94	91	284	309
181	1				4			4		x		III	93	88	283	300
182	1				4		3	7		x		Two	93	79	274	306
183	2		10					10		x		I	84	89	292	302
184	2	x						0	x			O	51	89	256	258
185	1				20		23	43			x	Two	108	86	280	297

Student	Socio-Economic Class	Participation Score by Type of Activity						Total Score	Score by Rank			Major Type Activity	California Achievement		STEP Achievement	
		O	I	II	III	IV	V		O	L	H		Read.	Arith.	Math.	Writing
154	1		5		28		9	42			x	Three	89	78	282	278
155	1					16		16		x		V	126	75	270	299
156	1					12		12		x		V	94	79	277	284
157*															291	275
158*																
159	1			20		3	3	26			x	II	103	85	275	264
160*															283	295
161	2						21	21			x	V	99	64	277	278
162	2	x						0	x			O	101	87	299	275
163	2			3		6	9	18		x		Three	107	97	268	297
164	1		5	2		2		9		x		Three	83	83	282	286
165	2			1			2	3		x		Two	123	83	303	300
166*															292	292
167	2		5		3			8		x		Two	96	71	278	283
168	1			21				21			x	II	95	69	287	277
169*															286	306
170	2		25					25			x	I	87	69	280	289
171	1		15					15		x		I	110	84	294	293
172**															280	284
173*															290	309
174	2					22	9	31			x	Two	94	83	275	277
175	1					6	4	10		x		Two	101	82	286	306
176	1		12	4	20	12	38	86			x	Three	98	72	272	266
177	2	x						0	x			O	61	64	263	248
178	1			4	6	6	26	42			x	Three	99	81	280	300
179	1		13					13		x		I	108	81	289	289
180	1			4	17		23	44			x	Three	94	91	284	309
181	1				4			4		x		III	93	88	283	300
182	1			4			3	7		x		Two	93	79	274	306
183	2		10					10		x		I	84	89	292	302
184	2	x						0	x			O	51	89	256	258
185	1				20		23	43			x	Two	108	86	280	297

Student	Socio-Economic Class	Participation Score by Type of Activity						Total Score	Score by Rank			Major Type Activity	California Achievement		STEP Achievement	
		0	I	II	III	IV	V		0	L	H		Read.	Arith.	Math.	Writing
186	1		15		8			23			x	Two	95	66	272	280
187	2				10		26	36			x	V	96	74	260	290
188*															268	309
189	2						12	12	x			V	94	80	280	284
190	2		16		8	12	9	35			x	Three	76	84	280	292
191*															282	304
192	2				6			6	x			III	103	66	272	290
193	1			1	14		1	16	x			III	110	86	295	306
194	1			2				2	x			II	74	69	285	281
195	2		5					5	x			I	54	50	275	278
196	2		30					30			x	I	58	53	270	266
197	1			7	30		13	50			x	Three	94	85	286	313
198	1						9	9		x		V	68	94	274	278
199	2	x						0	x			0	125	82	230	254
200	1			2				2		x		II	108	80	277	313
201	2			2				2		x		II	90	86	284	287
202*															263	266
203*															306	295
204	1		20					20			x	I	91	92	300	306
205*															286	280
206	2	x						0	x			0	86	59	270	280
207*																
208	2	x						0	x			0	97	74	242	287
209	2				12			12		x		III	105	82	286	284
210	2	x						0	x			0	89	74	277	278
211*																
212	1			22			2	24			x	II	82	66	289	287
213	2	x						0	x			0	79	70	272	280
214	2	x						0	x			0	72	55	277	262
215	1			4			6	10		x		Two	87	66	260	275
216	1					4		4		x		IV	54	82	268	290
217	2			3		8	23	34			x	Three	95	68	263	287

Student	Socio-Economic Class	Participation Score by Type of Activity						Total Score	Score by Rank			Major Type Activity	California Achievement		STEP Achievement	
		O	I	II	III	IV	V		O	L	H		Read.	Arith.	Math.	Writing
218	2				8			8	x			III	120	66	282	309
219*																
220	2	x						0	x			0	85	58	260	264
221	2			3	14		20	37			x	Three	72	80	256	280
222	2	x						0	x			0	40	49	260	262
223**																
224**																
225	2		31					31			x	I	107	82	290	297
226	1				12		24	36			x	Two	93	84	260	292
227	1	x						0	x			0	55	54	256	275
228	2	x						0	x			0	86	75	256	287
229	2						3	3		x		V	74	66	230	280
230	1				8			8		x		III	62	66	242	250
231	2	x						0	x			0	72	67	286	281
232**																
233	2						9	9		x		V	70	75	278	299
234	2	x						0	x			0	98	57	292	292
235*																
236	2			6	12	1	23	42			x	Three	84	54	265	275
237	2				12			12		x		III	100	66	268	286
238	2				4			4		x		III	37	66	260	256
239**																
240	2	x						0	x			0	80	80	284	277
241	1	x						0	x			0	80	80	280	264
242	2				10			10		x		III	80	64	272	260
243	2	x						0	x			0	80	81	260	268
244	2					1		1		x		IV	59	40	230	262
245	2	x						0	x			0	54	66	256	260
246	2						10	10		x		V	84	64	268	262
247	2		25				20	45			x	Two	72	64	260	271
248	2	x						0	x			0	78	54	272	275
249	x			4	6		12	22			x	Three	93	73	260	290

Student	Socio-Economic Class	Participation Score by Type of Activity						Total Score	Score by Rank			Major Type Activity	California Achievement		STEP Achievement	
		O	I	II	III	IV	V		O	L	H		Read.	Arith.	Math.	Writing
250*															260	286
251	1				4		4	8		x		Two	66	59	272	248
252	2			6		2	6	14		x		Three	72	59	265	258
253**																
254	2				25		2	27			x	III	96	72	260	289
255	2	x						0	x			O	33	61	251	247
256	2			5		4		9		x		Two	103	77	285	287
257	2			2	30		2	34			x	III	100	76	289	288
258**																
259	2	x						0	x			O	85	64	246	268
260	2	x						0	x			O	86	64	261	289
261	2	x						0	x			O	68	83	230	262
262	2			6			42	48			x	V	102	82	291	293
263	2				26			26			x	III	48	42	265	262
264	2			10			8	18		x		Two	41	70	242	247
265	2		10				8	18		x		Two	82	72	260	247
266	2	x						0	x			O	51	60	242	251
267**															285	295
268	2			10	15	12	8	45			x	Three	98	52	242	266
269	2			10	22		12	44			x	Three	59	56	230	281
270	2		5	8	18		10	41			x	Three	94	68	275	287
271	2			23	14	10	14	61			x	Three	89	74	268	275
272	1			20	18	14	2	54			x	Three	98	72	289	290
273	2			30				30			x	II	103	69	260	299
274	1			11	14	21	22	68			x	Three	82	58	260	274
275	2			10				10		x		II	43	61	242	264
276	2			24	10		6	40			x	Three	109	85	277	299
277	2		20				8	28			x	I	74	59	230	275
278*															230	299
279	2						20	20			x	V	55	40	263	262
280	2			4				4		x		II	72	63	230	254
281	2			8				8		x		II	97	77	274	258

Student	Socio-Economic Class	Participation — O	I	II	III	IV	V	Total Score	Rank — O	L	H	Major Type Activity	Read.	Arith.	Math.	Writing
282	2				3		8	11		x		V	53	59	242	251
283	2		5	2	18		8	33			x	Three	41	54	272	256
284*															242	254
285	2			22	8		8	38			x	Three	81	69	268	287
286	2			6	22		2	30			x	III	66	55	263	293
287	2				6		15	21			x	V	53	58	230	250
288	1			19	15	4	9	47			x	Three	93	78	270	280
289	2	x						0	x			O	101	57	275	250
290	2			20	6			26			x	II	85	61	265	289
291	2			2			8	10		x		V	77	47	263	266
292	1		50	6			6	62			x	I	76	53	230	281
293**															230	280
294	2		5					5		x		I	92	72	284	256
295	1			24	24		18	66			x	Three	80	59	263	271
296	2			11			16	27			x	Two	95	92	256	292
297	1		30	21	30		8	89			x	Three	78	66	268	278
298	2			42		10		52			x	II	101	85	286	300
299	2			8	4	14	20	46			x	Three	110	87	230	289
300	2			6	12	4	12	34			x	Three	111	93	284	300
301	2			2	12	10	8	32			x	Three	95	64	254	290
302	1		10	22	22			54			x	Three	45	79	242	275
303	1		4		4		8	16		x		Three	65	63	268	275
304	2			29			22	51			x	Two	101	91	270	283
305	2		10	3			6	19		x		Two	83	62	230	260
306	2				6		10	16		x		Two	72	64	242	260
307	2			9	36		14	59			x	Three	79	80	268	281
308	2	x						0	x			O	85	71	242	247
309	2	x						0	x			O	82	63	260	260
310	2			8	18		8	34			x	Three	50	62	268	277
311**																
312	1			10	18	4	8	40			x	Three	81	56	260	275
313	2				4		6	10		x		Two	50	52	256	256

Student	Socio-Economic Class	Participation Score by Type of Activity						Total Score	Score by Rank			Major Type Activity	California Achievement		STEP Achievement	
		O	I	II	III	IV	V		O	L	H		Read.	Arith.	Math.	Writing
314	2			14			6	18			x	Two	75	49	278	277
315	2						20	20			x	V	41	42	260	266
316	2	x						0	x			0	67	43	242	247
317	2				17		4	21			x	III	75	65	275	278
318	2	x						0	x			0	39	32	260	248
319	2	x						0	x			0	41	46	263	251
320	2				8	20		28			x	IV	54	54	256	277
321	2			6	6	32		44			x	IV	84	68	272	268
322	1			34	24	6		64			x	Three	76	61	251	289
323	1			10			30	40			x	V	100	91	274	297
324	1				6		30	36			x	V	96	77	282	295
325	1				6	3	7	16		x		Three	98	79	270	290
326	1						14	14		x		V	80	64	270	273
327	1	x						0	x			0	108	84	290	320
328*															274	283
329	1						18	18		x		V	99	83	284	313
330	2				9		20	29			x	Two	111	80	291	322
331	1						6	6		x		V	79	61	274	292
332	1						20	20			x	V	88	73	282	297
333*																
334**																
335	2	x						0	x			0	78	61	230	258
336	1						6	6		x		V-	72	86	269	298
337	1		10					10		x		I	100	69	284	299
338*															278	311
339*															277	292
340	2	x						0	x			0	94	77	283	278
341*															289	289
342	1				18			18		x		III	100	59	265	280
343	2	x						0	x			0	106	76	274	304
344	1						14	14		x		V	95	66	265	295
345*																

Student	Socio-Economic Class	Participation Score by Type of Activity						Total Score	Score by Rank			Major Type Activity	California Achievement		STEP Achievement	
		O	I	II	III	IV	V		O	L	H		Read.	Arith.	Math.	Writing
346	1				10	10	14	34			x	Three	105	99	294	304
347	2	x						0	x			0	63	63	260	278
348	2	x						0	x			0	76	71	278	283
349	1		15					15		x		I	80	73	283	292
350	1					2	18	20			x	V	99	79	277	300
351	1	x						0	x			0	103	79	274	268
352	1						14	14		x		V	117	74	294	293
353	1						14	14		x		V	78	84	289	295
354	1			5				5		x		I	95	75	274	287
355	2						2	2		x		V	93	69	268	286
356	1	x						0	x			0	96	81	287	287
357*																
358*															284	304
359	2					21		21			x	IV	80	84	278	295
360	2	x						0	x			0	85	62	265	277
361	1	x						0	x			0	103	86	291	300
362	1						14	14		x		V	102	64	260	299
363	1			20	6			26			x	II	104	82	300	293
364	1		23			1		24			x	I	107	68	278	248
365	1	x						0	x			0	113	92	287	287
366**																
367	2				6			6		x		III	81	79	278	266
368	1						14	14		x		V	108	89	282	309
369	2	x						0	x			0	104	84	294	304
370*															278	295
371	1						13	13		x		V	87	80	283	295
372	1	x						0	x			0	79	82	282	284
373	2	x						0	x			0	63	84	285	280
374	1						14	14		x		V	99	81	268	311
375	1						14	14		x		V	104	79	285	295
376*																
377	2		30		3		2	35			x	I	78	79	284	290

Student	Socio-Economic Class	Participation Score by Type of Activity						Total Score	Score by Rank			Major Type Activity	California Achievement		STEP Achievement	
		O	I	II	III	IV	V		O	L	H		Read.	Arith.	Math.	Writing
378*															283	293
379	2	x						0	x			0	72	54	278	271
380	1	x						0	x			0	106	78	291	292
381*																
382	1		5	2	9			16		x		Three	79	79	286	278
383	1		18	12				30			x	Two	107	80	294	293
384	1	x						0	x			0	106	95	297	283
385*																
386	1		23					23			x	I	88	100	277	290
387	1	x						0	x			0	88	80	284	287
388	1		30					30			x	I	107	101	230	284
389**	2															
390	1				10			10		x		III	108	88	314	322
391	1	x						0	x			0	88	80	296	283
392	1			1				1		x		II	95	63	256	286
393	2			4	6	6		16		x		Three	110	99	294	304
394**															280	304
395	1				30			30			x	III	110	87	294	292
396	1		45			12		57			x	I	51	63	256	247
397	2			3				3		x		II	46	60	230	247
398	1			3	4			7		x		Two	105	84	283	300
399*															282	292
400	1		20		2		2	24			x	I	75	56	270	274
401	1				30	3		33			x	III	79	74	272	280
402	1			6		24		30			x	IV	110	91	289	315
403	2					12	26	38			x	V	83	63	274	299
404	1				8	24		32			x	IV	82	77	294	311
405	2						8	8		x		V	54	57	263	260
406	2						8	8		x		V	80	64	277	260
407	2		2	2	1		2	7		x		Three	114	90	297	328
408	2				2	6	26	34			x	V	70	46	260	268
409	1			3		21		24			x	IV	127	90	287	320

Student	Socio-Economic Class	Participation Score by Type of Activity						Total Score	Score by Rank			Major Type Activity	California Achievement		STEP Achievement	
		O	I	II	III	IV	V		O	L	H		Read.	Arith.	Math.	Writing
410	1			3	6	6		15		x		Three	110	98	289	320
411	1			1	6		24	31			x	V	108	90	297	304
412	1						28	28			x	V	119	78	280	304
413*															265	284
414*															291	315
415	2				6	8		14		x		Two	80	71	270	283
416	2			12		6		18		x		Two	89	66	282	284
417	2				6		2	8		x		III	94	69	242	271
418*															268	289
419	2			3	4		8	15		x		Three	108	81	291	309
420	2				4			4		x		III	77	60	230	256
421	2			6		6		12		x		Two	101	84	284	311
422	1		3		25			28			x	III	84	72	272	278
423	1		50					50			x	I	104	94	296	290
424	1			4	16		4	24			x	III	113	92	290	295
425*															251	258
426*															277	278
427	2			8	6		18	32			x	Three	87	85	284	284
428	2	x						0	x			O	82	64	274	274
429**	1														300	290
430	2		50				3	53			x	I	80	90	270	281
431**															272	289
432	1			14	6	8	25	53			x	Three	104	101	290	313
433	1			10	6			16		x		Two	110	91	294	313
434*															287	284
435**																
436**															283	294
437	1			10	12			22			x	Two	97	68	282	299
438	1		12	18				30			x	Two	72	60	280	299
439**															289	297
440*															289	284
441	1		30				3	33			x	I	113	69	284	284

Student	Socio-Economic Class	Participation Score by Type of Activity						Total Score	Score by Rank			Major Type Activity	California Achievement		STEP Achievement	
		O	I	II	III	IV	V		O	L	H		Read.	Arith.	Math.	Writing
442**	1															
443**															297	309
444**															299	304
445**															277	284
446	1	3			16			19		x		III	68	58	260	266
447**															263	266
448**																
449	1	15						15		x		I	94	89	285	304

APPENDIX D

INSTRUCTIONS FOR ACTIVITY RATING SHEET

1. These rating sheets should be completed by any person in the
   school who has a knowledge of all activities in the junior high
   school.

2. Each club, organization, or group in your school, regardless of
   meeting time, should be rated. Use a separate rating sheet for
   each club, group, or organization.

3. In considering the time required for a particular activity, include
   school time, time taken from other class periods, and time spent
   other than during regular school hours.

4. Ratings for the activity should be considered in terms of all
   activities. That is, the amount of time normally spent in a
   particular activity should be compared to the amount of time
   usually spent in other activities. For example: The amount of
   time spent in band as compared to the amount of time spent in
   student council. The same will apply to the responsibility rating.

5. After all activities are rated, a self-addressed, stamped envelope
   is provided for your convenience for returning the rating sheets.

Thank you for your cooperation and assistance in this study.

<div style="text-align:right">

Floyd H. Stierwalt
1207 Jamestown Drive
Tahlequah, Oklahoma

</div>

ACTIVITY RATING SHEET

Please rate each activity in your school in terms of the usual amount of
time and the degree of responsibility normally expected of a student in
each of the roles listed. Please rate from 1 (lowest) to 5 (highest) by
circling the appropriate number.

Club or Group _____

Position	Time	Responsibility
President	1 2 3 4 5	1 2 3 4 5
Vice-President	1 2 3 4 5	1 2 3 4 5
Secretary	1 2 3 4 5	1 2 3 4 5
Treasurer	1 2 3 4 5	1 2 3 4 5
Other Position	1 2 3 4 5	1 2 3 4 5
Member	1 2 3 4 5	1 2 3 4 5

Please rate the club or group listed above according to the major purposes
as the activity functions in your school. Rate from 1 (lowest) to 5
(highest) by circling the appropriate number.

Physical Development	1 2 3 4 5
Intellectual Development	1 2 3 4 5
Cultural Development	1 2 3 4 5
General School Organization	1 2 3 4 5
School and Community Service	1 2 3 4 5

APPENDIX E

INSTRUCTIONS FOR ADMINISTERING QUESTIONNAIRE

1. Select from the current attendance register of the sophomore class every tenth student (nos. 10, 20, 30, 40, etc.)

2. If any student selected is absent at the time this questionnaire is administered, please administer to that student at the earliest possible time.

3. Please advise each student to answer all questions as carefully and accurately as possible. All information obtained is confidential and at no time will the student's name be used.

4. If a student does not know the answer to a question, instruct him to answer to the best of his knowledge.

5. A self-addressed, stamped envelop is provided for the completed questionnaires to be returned to the investigator.

Thank you for your cooperation and assistance in this study.

Floyd H. Stierwalt
1207 Jamestown Drive
Tahlequah, Oklahoma

STUDENT QUESTIONNAIRE

Name _____ Sex _____

Junior high school attended _____

Did you attend this junior high school the past three years? _____

Your father's (or guardian's) occupation: (Please describe as clearly
as possible.)

_____

Your mother's (or guardian's) occupation: (Please describe as clearly
as possible.)

_____

What was the highest grade or class in school attained by your father?

_____

What was the highest grade or class in school attained by your mother?

_____

Please list all activities in which you participated in junior high school:	Please list all offices or positions of responsibility you held in each of these activities:
Second semester freshman	Second semester freshman
First semester freshman	First semester freshman
Second semester eighth grade	Second semester eighth grade
First semester eighth grade	First semester eighth grade
Second semester seventh grade	Second semester seventh grade
First semester seventh grade	First semester seventh grade

APPENDIX F

TABLE XXIV

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF CALIFORNIA
ARITHMETIC SCORES RELATED TO THE DEGREE OF
PARTICIPATION IN TERMS OF TIME
DEVOTED TO ALL ACTIVITIES

Participation	Socio-Economic Classes I and II	
No Participation	ΣR_1	$= 10013$
	n_1	$= 62$
Low Participation	ΣR_2	$= 23846.5$
	n_2	$= 134$
High Participation	ΣR_3	$= 32935.5$
	n_3	$= 169$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \frac{(\Sigma R_3)^2}{n_3} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(10013)^2}{62} + \frac{(23846.5)^2}{134} + \frac{(32935.5)^2}{169} \right] - 3(365+1)$$

$H = 4.6856$ which with 2 df gives a P less than .05

TABLE XXV

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF CALIFORNIA
READING SCORES RELATED TO THE DEGREE OF
PARTICIPATION IN TERMS OF TIME
DEVOTED TO ALL ACTIVITIES

Participation	Socio-Economic Classes I and II
No Participation	$\Sigma R_1 = 8584$ $n_1 = 62$
Low Participation	$\Sigma R_2 = 24015$ $n_2 = 134$
High Participation	$\Sigma R_3 = 33299.5$ $n_3 = 169$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \frac{(\Sigma R_3)^3}{n_3} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(8584)^2}{62} + \frac{(24015)^2}{134} + \frac{(33299.5)^2}{169} \right] - 3(365+1)$$

$H = 10.7369$ which with 2 df gives a P greater than .05.

TABLE XXVI

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF STEP
MATHEMATICS SCORES RELATED TO THE DEGREE OF
PARTICIPATION IN TERMS OF TIME
DEVOTED TO ALL ACTIVITIES

Participation	Socio-Economic Classes I and II
No Participation	$\Sigma R_1 = 9850.5$ $n_1 = 62$
Low Participation	$\Sigma R_2 = 24305$ $n_2 = 134$
High Participation	$\Sigma R_3 = 32639.5$ $n_3 = 169$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \frac{(\Sigma R_3)^2}{n_3} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(9850.5)^2}{62} + \frac{(24305)^2}{134} + \frac{(32639.5)^2}{169} \right] - 3(365+1)$$

$H = 4.5053$ which with 2 df gives a P less than .05.

TABLE XXVII

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF STEP
WRITING SCORES RELATED TO THE DEGREE OF
PARTICIPATION IN TERMS OF TIME
DEVOTED TO ALL ACTIVITIES

Participation	Socio-Economic Classes I and II
No Participation	$\Sigma R_1 = 7139.5$ $n_1 = 62$
Low Participation	$\Sigma R_2 = 24637.5$ $n_2 = 134$
High Participation	$\Sigma R_3 = 35018$ $n_3 = 169$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \frac{(\Sigma R_3)^2}{n_3} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(7139.5)^2}{62} + \frac{(24637.5)^2}{134} + \frac{(35018)^2}{169} \right] - 3(365+1)$$

$H = 24.2237$ which with 2 df gives a P greater than .001.

TABLE XXVIII

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF CALIFORNIA ARITHMETIC SCORES RELATED TO THE TYPE OF ACTIVITY PARTICIPATED IN BY ALL STUDENTS

Type of Activity	Socio-Economic Classes I and II
None	$\Sigma R_1 = 9584$ $n_1 = 62$
Type I	$\Sigma R_2 = 9949.5$ $n_2 = 49$
Type II	$\Sigma R_3 = 4865$ $n_3 = 26$
Type III	$\Sigma R_4 = 5915.5$ $n_4 = 36$
Type IV	$\Sigma R_5 = 3755.5$ $n_5 = 20$
Type V	$\Sigma R_6 = 9385.5$ $n_6 = 55$
Two Types	$\Sigma R_7 = 10794.5$ $n_7 = 54$
Three or More	$\Sigma R_8 = 12116.5$ $n_8 = 63$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots \cdots \frac{(\Sigma R_8)^2}{n_8} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(9584)^2}{62} + \frac{(9949.5)^2}{49} + \frac{(4865)^2}{26} + \frac{(5915.5)^2}{36} + \frac{(3755.5)^2}{20} + \frac{(9385.5)^2}{55} + \frac{(10794.5)^2}{54} + \frac{(12116.5)^2}{63} \right] - 3(365+1)$$

$H = 7.8571$ which with 7 df gives a P of less than .05.

TABLE XXIX

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF CALIFORNIA
READING SCORES RELATED TO THE TYPE OF ACTIVITY
PARTICIPATED IN BY ALL STUDENTS

Type of Activity	Socio-Economic Classes I and II
None	$\Sigma R_1 = 10013$ $n_1 = 62$
Type I	$\Sigma R_2 = 9298$ $n_2 = 49$
Type II	$\Sigma R_3 = 5112$ $n_3 = 26$
Type III	$\Sigma R_4 = 6427.5$ $n_4 = 36$
Type IV	$\Sigma R_5 = 3467.5$ $n_5 = 20$
Type V	$\Sigma R_6 = 9468.5$ $n_6 = 55$
Two Types	$\Sigma R_7 = 11445.5$ $n_7 = 54$
Three or More	$\Sigma R_8 = 12095.5$ $n_8 = 63$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots \cdot \frac{(\Sigma R_8)^2}{n_8} \right] - 3(N+1)$$

$$H = \frac{12}{365(265+1)} \left[\frac{(10013)^2}{62} + \frac{(9298)^2}{49} + \frac{(5112)^2}{26} + \frac{(6427.5)^2}{36} + \right.$$
$$\left. \frac{(3467.5)^2}{20} + \frac{(9468.5)^2}{55} + \frac{(11445.5)^2}{54} + \frac{(12095.5)^2}{63} \right] - 3(365+1)$$

$H = 15.3790$ which with 7 df has a P greater than .05.

TABLE XXX

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF STEP
MATHEMATICS SCORES RELATED TO THE TYPE OF ACTIVITY
PARTICIPATED IN BY ALL STUDENTS

Type of Activity	Socio-Economic Classes I and II
None	$\Sigma R_1 = 9850.5$ $n_1 = 62$
Type I	$\Sigma R_2 = 10400$ $n_2 = 49$
Type II	$\Sigma R_3 = 5141.5$ $n_3 = 26$
Type III	$\Sigma R_4 = 6328.5$ $n_4 = 36$
Type IV	$\Sigma R_5 = 3274.5$ $n_5 = 20$
Type V	$\Sigma R_6 = 9280$ $n_6 = 55$
Two Types	$\Sigma R_7 = 10538$ $n_7 = 54$
Three or More	$\Sigma R_8 = 11982$ $n_8 = 63$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots \cdot \frac{(\Sigma R_8)^2}{n_8} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(9850.5)^2}{62} + \frac{(10400)^2}{49} + \frac{(5141.5)^2}{56} + \frac{(6328.5)^2}{36} + \frac{(3274.5)^2}{20} + \frac{(9280)^2}{55} + \frac{(10538)^2}{54} + \frac{(11982)^2}{63} \right] - 3(365+1)$$

$H = 10.0625$ which with 7 df gives a P of less than .05.

TABLE XXXI

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF STEP
WRITING SCORES RELATED TO THE TYPE OF ACTIVITY
PARTICIPATED IN BY ALL STUDENTS

Type of Activity	Socio-Economic Classes I and II
None	$\Sigma R_1 = 7139.5$ $n_1 = 62$
Type I	$\Sigma R_2 = 8810$ $n_2 = 49$
Type II	$\Sigma R_3 = 5259$ $n_3 = 26$
Type III	$\Sigma R_4 = 6316$ $n_4 = 36$
Type IV	$\Sigma R_5 = 3688$ $n_5 = 20$
Type V	$\Sigma R_6 = 10989$ $n_6 = 55$
Two Types	$\Sigma R_7 = 12088$ $n_7 = 54$
Three or More	$\Sigma R_8 = 12505.5$ $n_8 = 63$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots + \frac{(\Sigma R_8)^2}{n_8} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(7139.5)^2}{62} + \frac{(8810)^2}{49} + \frac{(5259)^2}{26} + \frac{(6316)^2}{36} + \frac{(3688)^2}{20} + \frac{(10989)^2}{55} + \frac{(12088)^2}{54} + \frac{(12505.5)^2}{63} \right] - 3(365+1)$$

$H = 37.1773$ which with 7 df gives a P greater than .001.

TABLE XXXII

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF CALIFORNIA ARITHMETIC
SCORES RELATED TO THE DEGREE OF PARTICIPATION IN THE VARIOUS
TYPES OF ACTIVITIES BY ALL STUDENTS

Type of Activity	Socio-Economic Classes I and II		
	No Participation	Low Participation	High Participation
None	$\Sigma R_1 = 10013$ $n_1 = 62$		
Type I		$\Sigma R_2 = 3228$ $n_2 = 17$	$\Sigma R_3 = 6721.5$ $n_3 = 32$
Type II		$\Sigma R_4 = 2762$ $n_4 = 14$	$\Sigma R_5 = 2103$ $n_5 = 12$
Type III		$\Sigma R_6 = 3788$ $n_6 = 22$	$\Sigma R_7 = 2127.5$ $n_7 = 14$
Type IV		$\Sigma R_8 = 1389$ $n_8 = 9$	$\Sigma R_9 = 2366.5$ $n_9 = 11$
Type V		$\Sigma R_{10} = 5308$ $n_{10} = 34$	$\Sigma R_{11} = 4077.5$ $n_{11} = 21$
Two Types		$\Sigma R_{12} = 4478$ $n_{12} = 25$	$\Sigma R_{13} = 6316.5$ $n_{13} = 29$
Three or More		$\Sigma R_{14} = 2893.5$ $n_{14} = 13$	$\Sigma R_{15} = 9223$ $n_{15} = 50$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots \frac{(\Sigma R_{15})^2}{n_{15}} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(10013)^2}{62} + \frac{(3228)^2}{17} + \frac{(6721.5)^2}{32} + \frac{(2762)^2}{14} + \right.$$

$$\frac{(2103)^2}{12} + \frac{(3788)^2}{22} + \frac{(2127.5)^2}{14} + \frac{(1389)^2}{9} + \frac{(2366.5)^2}{11} +$$

$$\frac{(5308)^2}{34} + \frac{(4077.5)^2}{21} + \frac{(4478)^2}{25} + \frac{(6316.5)^2}{29} + \frac{(2893.5)^2}{13} +$$

$$\left. \frac{(9223)^2}{50} \right] - 3(365+1)$$

$H = 15.3492$ which with 14 df gives a P less than .05.

TABLE XXXIII

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF CALIFORNIA READING
SCORES RELATED TO THE DEGREE OF PARTICIPATION IN THE VARIOUS
TYPES OF ACTIVITIES BY ALL STUDENTS

Type of Activity	Socio-Economic Classes I and II		
	No Participation	Low Participation	High Participation
None	$\Sigma R_1 = 9584$ $n_1 = 62$		
Type I		$\Sigma R_2 = 3175$ $n_2 = 17$	$\Sigma R_3 = 6123$ $n_3 = 32$
Type II		$\Sigma R_4 = 2677.5$ $n_4 = 14$	$\Sigma R_5 = 2434.5$ $n_5 = 12$
Type III		$\Sigma R_6 = 4380$ $n_6 = 22$	$\Sigma R_7 = 2047.5$ $n_7 = 14$
Type IV		$\Sigma R_8 = 1259$ $n_8 = 9$	$\Sigma R_9 = 2208.5$ $n_9 = 11$
Type V		$\Sigma R_{10} = 5039$ $n_{10} = 34$	$\Sigma R_{11} = 4429.5$ $n_{11} = 21$
Two Types		$\Sigma R_{12} = 4821$ $n_{12} = 25$	$\Sigma R_{13} = 6624.5$ $n_{13} = 29$
Three or More		$\Sigma R_{14} = 2663.5$ $n_{14} = 13$	$\Sigma R_{15} = 9432$ $n_{14} = 50$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \ldots \ldots \frac{(\Sigma R_{15})^2}{n_{15}} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(9584)^2}{62} + \frac{(3175)^2}{17} + \frac{(6123)^2}{32} + \frac{(2677.5)^2}{14} + \right.$$

$$\frac{(2434.5)^2}{12} + \frac{(4380)^2}{22} + \frac{(2047.5)^2}{14} + \frac{(1259)^2}{9} + \frac{(2208.5)^2}{11} +$$

$$\frac{(5039)^2}{34} + \frac{(4429.5)^2}{21} + \frac{(4821)^2}{25} + \frac{(6624.5)^2}{29} + \frac{(2663.5)^2}{13} +$$

$$\left. \frac{(9432)^2}{50} \right] - 3(365+1)$$

$H = 11.0257$ which with 14 df gives a P less than .05.

TABLE XXXIV

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF STEP MATHEMATICS
SCORES RELATED TO THE DEGREE OF PARTICIPATION IN THE
VARIOUS TYPES OF ACTIVITIES BY ALL STUDENTS

Type of Activity	Socio-Economic Classes I and II		
	No Participation	Low Participation	High Participation
None	$\Sigma R_1 = 9850.5$ $n_1 = 62$		
Type I		$\Sigma R_2 = 4239.5$ $n_2 = 17$	$\Sigma R_3 = 6160.5$ $n_3 = 32$
Type II		$\Sigma R_4 = 2714.5$ $n_4 = 14$	$\Sigma R_5 = 2427$ $n_5 = 12$
Type III		$\Sigma R_6 = 3616.5$ $n_6 = 22$	$\Sigma R_7 = 2712$ $n_7 = 14$
Type IV		$\Sigma R_8 = 1267$ $n_8 = 9$	$\Sigma R_9 = 2007.5$ $n_9 = 11$
Type V		$\Sigma R_{10} = 5296.5$ $n_{10} = 34$	$\Sigma R_{11} = 3983.5$ $n_{11} = 21$
Two Types		$\Sigma R_{12} = 4661.5$ $n_{12} = 25$	$\Sigma R_{13} = 5876.5$ $n_{13} = 29$
Three or More		$\Sigma R_{14} = 2509.5$ $n_{14} = 13$	$\Sigma R_{15} = 9472.5$ $n_{15} = 50$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \ldots \frac{(\Sigma R_{15})^2}{n_{15}} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(9850.5)^2}{62} + \frac{(4239.5)^2}{17} + \frac{(6160.5)^2}{32} + \frac{(2714.5)^2}{14} + \right.$$

$$\frac{(2427)^2}{12} + \frac{(3616.5)^2}{22} + \frac{(2712)^2}{14} + \frac{(1267)^2}{9} + \frac{(2007.5)^2}{11} +$$

$$\frac{(5296.5)^2}{34} + \frac{(3983.5)^2}{21} + \frac{(4661.5)^2}{25} + \frac{(5876.5)^2}{29} + \frac{(2509.5)^2}{13} +$$

$$\left. \frac{(9472.5)^2}{50} \right] - 3(365+1)$$

$H = 16.7427$ which with 14 df gives a P less than .05.

TABLE XXXV

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF STEP WRITING
SCORES RELATED TO THE DEGREE OF PARTICIPATION IN THE
VARIOUS TYPES OF ACTIVITIES BY ALL STUDENTS

Type of Activity	Socio-Economic Classes I and II		
	No Participation	Low Participation	High Participation
None	$\Sigma R_1 = 7139.5$ $n_1 = 62$		
Type I		$\Sigma R_2 = 3298$ $n_2 = 17$	$\Sigma R_3 = 5512$ $n_3 = 32$
Type II		$\Sigma R_4 = 2642$ $n_4 = 14$	$\Sigma R_5 = 2617$ $n_5 = 12$
Type III		$\Sigma R_6 = 3855.5$ $n_6 = 22$	$\Sigma R_7 = 2460.5$ $n_7 = 14$
Type IV		$\Sigma R_8 = 1250.5$ $n_8 = 9$	$\Sigma R_9 = 2437.5$ $n_9 = 11$
Type V		$\Sigma R_{10} = 6096$ $n_{10} = 34$	$\Sigma R_{11} = 4893$ $n_{11} = 21$
Two Types		$\Sigma R_{12} = 4927.5$ $n_{12} = 25$	$\Sigma R_{13} = 7160.5$ $n_{13} = 29$
Three or More		$\Sigma R_{14} = 2568$ $n_{14} = 13$	$\Sigma R_{15} = 9937.5$ $n_{15} = 60$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots + \frac{(\Sigma R_{15})^2}{n_{15}} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(7139.5)^2}{62} + \frac{(3298)^2}{17} + \frac{(5512)^2}{32} + \frac{(2642)^2}{14} + \right.$$

$$\frac{(2617)^2}{12} + \frac{(3855.5)^2}{22} + \frac{(2460.6)^2}{14} + \frac{(1250.5)^2}{9} + \frac{(2437.5)^2}{11} +$$

$$\frac{(6096)^2}{34} + \frac{(4893)^2}{21} + \frac{(4927.5)^2}{25} + \frac{(7160.5)^2}{29} + \frac{(2568)^2}{13} +$$

$$\left. \frac{(9937.5)^2}{50} \right] - 3(365+1)$$

$H = 47.5346$ which with 14 df gives a P greater than .001.

TABLE XXXVI

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF CALIFORNIA ARITHMETIC
SCORES RELATED TO THE DEGREE OF PARTICIPATION IN TERMS OF TIME SPENT
IN ALL ACTIVITIES BY STUDENTS OF DIFFERENT SOCIO-ECONOMIC CLASSES

Degree of Participation	Socio-Economic Class I	Socio-Economic Class II
No Participation	$\Sigma R_1 = 3197.5$ $n_1 = 16$	$\Sigma R_4 = 6815.5$ $n_4 = 46$
Low Participation	$\Sigma R_2 = 13257$ $n_2 = 64$	$\Sigma R_5 = 10589.5$ $n_5 = 70$
High Participation	$\Sigma R_3 = 20176$ $n_3 = 90$	$\Sigma R_6 = 12759.5$ $n_6 = 79$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots \frac{(\Sigma R_6)^2}{n_6} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(3197.5)^2}{16} + \frac{(13257)^2}{64} + \frac{(20176)^2}{90} + \frac{(6815.5)^2}{46} + \frac{(10589.5)^2}{70} + \frac{(12759.5)^2}{79} \right] - 3(365+1)$$

$H = 31.7681$ which with 5 df gives a P greater than .001.

TABLE XXXVII

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF CALIFORNIA READING
SCORES RELATED TO THE DEGREE OF PARTICIPATION IN TERMS OF
TIME SPENT IN ALL ACTIVITIES BY STUDENTS OF
DIFFERENT SOCIO-ECONOMIC CLASSES

Degree of Participation	Socio-Economic Class I	Socio-Economic Class II
No Participation	$\Sigma R_1 = 3331$ $n_1 = 16$	$\Sigma R_4 = 6253$ $n_4 = 46$
Low Participation	$\Sigma R_2 = 13224$ $n_2 = 64$	$\Sigma R_5 = 10791$ $n_5 = 70$
High Participation	$\Sigma R_3 = 20878.5$ $n_3 = 90$	$\Sigma R_6 = 12421$ $n_6 = 79$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots \cdots \frac{(\Sigma R_6)^2}{n_6} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(3331)^2}{16} + \frac{(13224)^2}{64} + \frac{(20878.5)^2}{90} + \frac{(6253)^2}{46} + \frac{(10791)^2}{70} + \frac{(12421)^2}{79} \right] - 3(365+1)$$

$H = 46.5999$ which with 2 df gives a P greater than .001.

TABLE XXXVIII

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF STEP MATHEMATICS
SCORES RELATED TO THE DEGREE OF PARTICIPATION IN TERMS OF
TIME SPENT IN ALL ACTIVITIES BY STUDENTS OF
DIFFERENT SOCIO-ECONOMIC CLASSES

Degree of Participation	Socio-Economic Class I	Socio-Economic Class II
No Participation	$\Sigma R_1 = 3855.5$ $n_1 = 16$	$\Sigma R_4 = 5995$ $n_4 = 46$
Low Participation	$\Sigma R_2 = 13495.5$ $n_2 = 64$	$\Sigma R_5 = 10809.5$ $n_5 = 70$
High Participation	$\Sigma R_3 = 20481.5$ $n_3 = 90$	$\Sigma R_6 = 12158$ $n_6 = 79$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots \cdot \frac{(\Sigma R_6)^2}{n_3} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(3855.5)^2}{16} + \frac{(13495.5)^2}{64} + \frac{(20481.5)^2}{90} + \frac{(5995)^2}{46} + \frac{(10809.5)^2}{70} + \frac{(12158)^2}{79} \right] - 3(365+1)$$

$H = 47.6910$ which with 5 df gives a P greater than .001.

TABLE XXXIX

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF STEP WRITING
SCORES RELATED TO THE DEGREE OF PARTICIPATION IN TERMS
OF TIME IN ALL ACTIVITIES BY STUDENTS OF
DIFFERENT SOCIO-ECONOMIC CLASSES

Degree of Participation	Socio-Economic Class I	Socio-Economic Class II
No Participation	$\Sigma R_1 = 2629.5$ $n_1 = 16$	$\Sigma R_4 = 4510.5$ $n_4 = 46$
Low Participation	$\Sigma R_2 = 14762.5$ $n_2 = 64$	$\Sigma R_5 = 9875$ $n_5 = 70$
High Participation	$\Sigma R_3 = 21108.5$ $n_3 = 90$	$\Sigma R_6 = 13909.5$ $n_6 = 79$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots \cdot \frac{(\Sigma R_6)^2}{n_6} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(2629.5)^2}{16} + \frac{(14762.5)^2}{64} + \frac{(21108.5)^2}{90} + \frac{(4510.5)^2}{46} + \frac{(9875)^2}{70} + \frac{(13909.5)^2}{79} \right] - 3(365+1)$$

$H = 75.9545$ which with 5 df gives a P greater than .001.

TABLE XL

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF CALIFORNIA ARITHMETIC SCORES RELATED TO THE TYPE OF ACTIVITY PARTICIPATED IN BY STUDENTS OF DIFFERENT SOCIO-ECONOMIC CLASSES

Type of Activity	Socio-Economic Class I	Socio-Economic Class II
None	$\Sigma R_1 = 3197.5$ $n_1 = 16$	$\Sigma R_9 = 6815.5$ $n_9 = 46$
Type I	$\Sigma R_2 = 6098.5$ $n_2 = 28$	$\Sigma R_{10} = 3851$ $n_{10} = 21$
Type II	$\Sigma R_3 = 2756.5$ $n_3 = 12$	$\Sigma R_{11} = 2108.5$ $n_{11} = 14$
Type III	$\Sigma R_4 = 3080$ $n_4 = 16$	$\Sigma R_{12} = 2835.5$ $n_{12} = 20$
Type IV	$\Sigma R_5 = 2572.5$ $n_5 = 11$	$\Sigma R_{13} = 1183$ $n_{13} = 9$
Type V	$\Sigma R_6 = 7289$ $n_6 = 33$	$\Sigma R_{14} = 2096.5$ $n_{14} = 22$
Two Types	$\Sigma R_7 = 4937$ $n_7 = 22$	$\Sigma R_{15} = 5857.5$ $n_{15} = 32$
Three or More	$\Sigma R_8 = 6699.5$ $n_8 = 32$	$\Sigma R_{16} = 5417$ $n_{16} = 31$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots \cdot \frac{(\Sigma R_{16})^2}{n_{16}} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(3197.5)^2}{16} + \frac{(6098.5)^2}{28} + \frac{(2756.5)^2}{12} + \frac{(3080)^2}{16} + \right.$$

$$\frac{(2572.5)^2}{11} + \frac{(7289)^2}{33} + \frac{(4937)^2}{22} + \frac{(6699.5)^2}{32} + \frac{(6815.5)^2}{46} +$$

$$\frac{(3851)^2}{21} + \frac{(2108.5)^2}{14} + \frac{(2835.5)^2}{20} + \frac{(1183)^2}{9} + \frac{(2096.5)^2}{22} +$$

$$\left. \frac{(5857.5)^2}{32} + \frac{(5417)^2}{31} \right] - 3(365+1)$$

$H = 44.7498$ which with 15 df gives a P greater than .001.

TABLE XLI

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF CALIFORNIA READING
SCORES RELATED TO THE TYPE OF ACTIVITY PARTICIPATED IN BY
STUDENTS OF DIFFERENT SOCIO-ECONOMIC CLASSES

Type of Activity	Socio-Economic Class I	Socio-Economic Class II
None	$\Sigma R_1 = 3331$ $n_1 = 16$	$\Sigma R_9 = 6253$ $n_9 = 46$
Type I	$\Sigma R_2 = 6146.5$ $n_2 = 28$	$\Sigma R_{10} = 3151.5$ $n_{10} = 21$
Type II	$\Sigma R_3 = 3092$ $n_3 = 12$	$\Sigma R_{11} = 2020$ $n_{11} = 14$
Type III	$\Sigma R_4 = 3337$ $n_4 = 16$	$\Sigma R_{12} = 3090.5$ $n_{12} = 20$
Type IV	$\Sigma R_5 = 2586$ $n_5 = 11$	$\Sigma R_{13} = 881.5$ $n_{13} = 9$
Type V	$\Sigma R_6 = 6919.5$ $n_6 = 33$	$\Sigma R_{14} = 2549$ $n_{14} = 22$
Two Types	$\Sigma R_7 = 5435.5$ $n_7 = 22$	$\Sigma R_{15} = 6010$ $n_{15} = 32$
Three or More	$\Sigma R_8 = 6586$ $n_8 = 32$	$\Sigma R_{16} = 5509.5$ $n_{16} = 31$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots \cdot \frac{(\Sigma R_{16})^2}{n_{16}} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(3331)^2}{16} + \frac{(6146.5)^2}{28} + \frac{(3092)^2}{12} + \frac{(3337)^2}{16} + \right.$$

$$\frac{(2586)^2}{11} + \frac{(6919.5)^2}{33} + \frac{(5435.5)^2}{22} + \frac{(6586)^2}{32} + \frac{(6253)^2}{46} +$$

$$\frac{(3151.5)^2}{21} + \frac{(2020)^2}{14} + \frac{(3090.5)^2}{20} + \frac{(881.5)^2}{9} + \frac{(2549)^2}{22} +$$

$$\left. \frac{(6010)^2}{32} + \frac{(5909.5)^2}{31} \right] - 3(365+1)$$

$H = 52.5267$ which with 15 df gives a P greater than .001.

TABLE XLII

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF STEP MATHEMATICS
SCORES RELATED TO THE TYPE OF ACTIVITY PARTICIPATED IN BY
STUDENTS OF DIFFERENT SOCIO-ECONOMIC CLASSES

Type of Activity	Socio-Economic Class I	Socio-Economic Class II
None	$\Sigma R_1 = 3855.5$ $n_1 = 16$	$\Sigma R_9 = 5995$ $n_9 = 46$
Type I	$\Sigma R_2 = 6438$ $n_2 = 28$	$\Sigma R_{10} = 3962$ $n_{10} = 21$
Type II	$\Sigma R_3 = 2928$ $n_3 = 12$	$\Sigma R_{11} = 2213.5$ $n_{11} = 14$
Type III	$\Sigma R_4 = 3581.5$ $n_4 = 16$	$\Sigma R_{12} = 2747$ $n_{12} = 20$
Type IV	$\Sigma R_5 = 2231$ $n_5 = 11$	$\Sigma R_{13} = 1043.5$ $n_{13} = 9$
Type V	$\Sigma R_6 = 6706$ $n_6 = 33$	$\Sigma R_{14} = 2574$ $n_{14} = 22$
Two Types	$\Sigma R_7 = 4936.5$ $n_7 = 22$	$\Sigma R_{15} = 5551.5$ $n_{15} = 32$
Three or More	$\Sigma R_8 = 7106$ $n_8 = 32$	$\Sigma R_{16} = 4876$ $n_{16} = 31$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots + \frac{(\Sigma R_{16})^2}{n_{16}} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(3855.5)^2}{16} + \frac{(6438)^2}{28} + \frac{(2938)^2}{12} + \frac{(3581.5)^2}{16} + \right.$$

$$\frac{(2231)^2}{11} + \frac{(6706)^2}{33} + \frac{(4936.5)^2}{22} + \frac{(7106)^2}{32} + \frac{(5995)^2}{46} +$$

$$\frac{(3962)^2}{21} + \frac{(2213.5)^2}{14} + \frac{(2747)^2}{20} + \frac{(1043.5)^2}{9} + \frac{(2574)^2}{22} +$$

$$\left. \frac{(5551.5)^2}{32} + \frac{(4876)^2}{31} \right] - 3(365+1)$$

$H = 46.8699$ which with 15 df gives a P greater than .001.

TABLE XLIII

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF STEP WRITING SCORES
RELATED TO THE TYPE OF ACTIVITY PARTICIPATED IN BY STUDENTS
OF DIFFERENT SOCIO-ECONOMIC CLASSES

Type of Activity	Socio-Economic Class I	Socio-Economic Class II
None	$\Sigma R_1 = 2629.5$ $n_1 = 16$	$\Sigma R_9 = 4510.5$ $n_9 = 46$
Type I	$\Sigma R_2 = 5621.5$ $n_2 = 28$	$\Sigma R_{10} = 3188.5$ $n_{10} = 21$
Type II	$\Sigma R_3 = 2766$ $n_3 = 12$	$\Sigma R_{11} = 2493$ $n_{11} = 14$
Type III	$\Sigma R_4 = 3437$ $n_4 = 16$	$\Sigma R_{12} = 2879$ $n_{12} = 20$
Type IV	$\Sigma R_5 = 2828.5$ $n_5 = 11$	$\Sigma R_{13} = 859.5$ $n_{13} = 9$
Type V	$\Sigma R_6 = 8235$ $n_6 = 33$	$\Sigma R_{14} = 2754$ $n_{14} = 22$
Two Types	$\Sigma R_7 = 6057.5$ $n_7 = 22$	$\Sigma R_{15} = 6030.5$ $n_{15} = 32$
Three or More	$\Sigma R_8 = 6925.5$ $n_8 = 32$	$\Sigma R_{16} = 5580$ $n_{16} = 31$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots \cdot \frac{(\Sigma R_{16})^2}{n_{16}} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(2629.5)^2}{16} + \frac{(5621.5)^2}{28} + \frac{(2766)^2}{12} + \frac{(3437)^2}{16} + \right.$$

$$\frac{(2828.5)^2}{11} + \frac{(8235)^2}{33} + \frac{(6057.5)^2}{22} + \frac{(6925.5)^2}{32} + \frac{(4510.5)^2}{46} +$$

$$\frac{(3188.5)^2}{21} + \frac{(2493)^2}{14} + \frac{(2879)^2}{20} + \frac{(859.5)^2}{9} + \frac{(2754)^2}{22} +$$

$$\left. \frac{(6030.5)^2}{32} + \frac{(5580)^2}{31} \right] - 3(365+1)$$

$H = 99.8642$ which with 15 df gives a P greater than .001.

TABLE XLIV

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF CALIFORNIA ARITHMETIC SCORES RELATED TO THE DEGREE OF
PARTICIPATION IN THE VARIOUS TYPES OF ACTIVITIES BY STUDENTS OF DIFFERENT SOCIO-ECONOMIC CLASSES

Type of Activity	Socio-Economic Class I			Socio-Economic Class II		
	No Participation	Low Participation	High Participation	No Participation	Low Participation	High Participation
None	$\Sigma R_1 = 3197.5$ $n_1 = 16$			$\Sigma R_{16} = 6815.5$ $n_{16} = 46$		
Type I		$\Sigma R_2 = 2128$ $n_2 = 11$	$\Sigma R_3 = 3970.5$ $n_3 = 17$		$\Sigma R_{17} = 1100$ $n_{17} = 6$	$\Sigma R_{18} = 2751$ $n_{18} = 15$
Type II		$\Sigma R_4 = 1459.5$ $n_4 = 6$	$\Sigma R_5 = 1297$ $n_5 = 6$		$\Sigma R_{19} = 1302.5$ $n_{19} = 8$	$\Sigma R_{20} = 806$ $n_{20} = 6$
Type III		$\Sigma R_6 = 1590.5$ $n_6 = 8$	$\Sigma R_7 = 1489.5$ $n_7 = 8$		$\Sigma R_{21} = 2197.5$ $n_{21} = 14$	$\Sigma R_{22} = 638$ $n_{22} = 6$
Type IV		$\Sigma R_8 = 915.5$ $n_8 = 4$	$\Sigma R_9 = 1657$ $n_9 = 7$		$\Sigma R_{23} = 473.5$ $n_{23} = 5$	$\Sigma R_{24} = 709.5$ $n_{24} = 4$
Type V		$\Sigma R_{10} = 3822$ $n_{10} = 20$	$\Sigma R_{11} = 3467$ $n_{11} = 13$		$\Sigma R_{25} = 1486$ $n_{25} = 13$	$\Sigma R_{26} = 610.5$ $n_{26} = 8$
Two Types		$\Sigma R_{12} = 1870$ $n_{12} = 9$	$\Sigma R_{13} = 3067$ $n_{13} = 13$		$\Sigma R_{27} = 2608$ $n_{27} = 16$	$\Sigma R_{28} = 3249.5$ $n_{28} = 16$
Three or More		$\Sigma R_{14} = 1471.5$ $n_{14} = 6$	$\Sigma R_{15} = 5228$ $n_{15} = 26$		$\Sigma R_{29} = 1422$ $n_{29} = 7$	$\Sigma R_{30} = 3995$ $n_{30} = 24$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots \cdot \frac{(\Sigma R_{30})^2}{n_{30}} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(3197.5)^2}{16} + \frac{(2128)^2}{11} + \frac{(3970.5)^2}{17} + \frac{(1459.5)^2}{6} + \right.$$

$$\frac{(1297)^2}{6} + \frac{(1590.5)^2}{8} + \frac{(1489.5)^2}{8} + \frac{(915.5)^2}{4} + \frac{(1657)^2}{7} +$$

$$\frac{(3822)^2}{20} + \frac{(3467)^2}{13} + \frac{(1870)^2}{9} + \frac{(3067)^2}{13} + \frac{(1471.5)^2}{6} +$$

$$\frac{(5228)^2}{26} + \frac{(6815.5)^2}{46} + \frac{(1100)^2}{6} + \frac{(2751)^2}{15} + \frac{(1302.5)^2}{8} +$$

$$\frac{(806)^2}{6} + \frac{(2197.5)^2}{14} + \frac{(638)^2}{6} + \frac{(473.5)^2}{5} + \frac{(709.5)^2}{4} +$$

$$\frac{(1486)^2}{14} + \frac{(610.5)^2}{8} + \frac{(2608)^2}{16} + \frac{(3249.5)^2}{16} + \frac{(1422)^2}{7} +$$

$$\left. \frac{(3995)^2}{24} \right] - 3(365+1)$$

$H = 131.4648$ which with 29 df gives a P greater than .001.

TABLE XLV

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF CALIFORNIA READING SCORES RELATED TO THE DEGREE OF PARTICIPATION IN THE VARIOUS TYPES OF ACTIVITIES BY STUDENTS OF DIFFERENT SOCIO-ECONOMIC CLASSES

Type of Activity	Socio-Economic Class I			Socio-Economic Class II		
	No Participation	Low Participation	High Participation	No Participation	Low Participation	High Participation
None	$\Sigma R_1 = 3331$ $n_1 = 16$			$\Sigma R_{16} = 6253$ $n_{16} = 46$		
Type I		$\Sigma R_2 = 2438$ $n_2 = 11$	$\Sigma R_3 = 3708.5$ $n_3 = 17$		$\Sigma R_{17} = 737$ $n_{17} = 6$	$\Sigma R_{18} = 2414.5$ $n_{18} = 15$
Type II		$\Sigma R_4 = 1528$ $n_4 = 6$	$\Sigma R_5 = 1564$ $n_5 = 6$		$\Sigma R_{19} = 1149.5$ $n_{19} = 8$	$\Sigma R_{20} = 870.5$ $n_{20} = 6$
Type III		$\Sigma R_6 = 1788$ $n_6 = 8$	$\Sigma R_7 = 1549$ $n_7 = 8$		$\Sigma R_{21} = 2592$ $n_{21} = 14$	$\Sigma R_{22} = 498.5$ $n_{22} = 6$
Type IV		$\Sigma R_8 = 822.5$ $n_8 = 4$	$\Sigma R_9 = 1763.5$ $n_9 = 7$		$\Sigma R_{23} = 436.5$ $n_{23} = 5$	$\Sigma R_{24} = 445$ $n_{24} = 4$
Type V		$\Sigma R_{10} = 3467$ $n_{10} = 20$	$\Sigma R_{11} = 3452.5$ $n_{11} = 13$		$\Sigma R_{25} = 1572$ $n_{25} = 14$	$\Sigma R_{26} = 977$ $n_{26} = 8$
Two Types		$\Sigma R_{12} = 2071.5$ $n_{12} = 9$	$\Sigma R_{13} = 3364$ $n_{13} = 13$		$\Sigma R_{27} = 2749.5$ $n_{27} = 16$	$\Sigma R_{28} = 3260.6$ $n_{28} = 16$
Three or More		$\Sigma R_{14} = 1109$ $n_{14} = 6$	$\Sigma R_{15} = 5477$ $n_{15} = 26$		$\Sigma R_{29} = 1554.5$ $n_{29} = 7$	$\Sigma R_{30} = 3955$ $n_{30} = 24$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots \cdot \frac{(\Sigma R_{30})^2}{n_{30}} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(3331)^2}{16} + \frac{(2438)^2}{11} + \frac{(3708.5)^2}{17} + \frac{(1528)^2}{6} + \right.$$

$$\frac{(1564)^2}{6} + \frac{(1788)^2}{8} + \frac{(1549)^2}{8} + \frac{(822.5)^2}{4} + \frac{(1763.5)^2}{7} +$$

$$\frac{(3467)^2}{20} + \frac{(3452.5)^2}{13} + \frac{(2071.5)^2}{9} + \frac{(3364)^2}{13} + \frac{(1109)^2}{6} +$$

$$\frac{(5477)^2}{26} + \frac{(6253)^2}{46} + \frac{(737)^2}{6} + \frac{(2414.5)^2}{15} + \frac{(1149.5)^2}{8} +$$

$$\frac{(870.5)^2}{6} + \frac{(2592)^2}{14} + \frac{(498.5)^2}{6} + \frac{(436.5)^2}{5} + \frac{(445)^2}{4} +$$

$$\frac{(1572)^2}{14} + \frac{(977)^2}{8} + \frac{(2749.5)^2}{16} + \frac{(3260.5)^2}{16} + \frac{(1554.5)^2}{7} +$$

$$\left. \frac{(3955)^2}{24} \right] - 3(365+1)$$

$H = 73.0131$ which with 29 df gives a P greater than .001.

TABLE XLVI

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF STEP MATHEMATICS SCORES RELATED TO THE DEGREE OF PARTICIPATION
IN THE VARIOUS TYPES OF ACTIVITIES BY STUDENTS OF DIFFERENT SOCIO-ECONOMIC CLASSES

Type of Activity	Socio-Economic Class I			Socio-Economic Class II		
	No Participation	Low Participation	High Participation	No Participation	Low Participation	High Participation
None	$\Sigma R_1 = 3855.5$ $n_1 = 16$			$\Sigma R_{16} = 5995$ $n_{16} = 46$		
Type I		$\Sigma R_2 = 2707$ $n_2 = 11$	$\Sigma R_3 = 3731$ $n_3 = 17$		$\Sigma R_{17} = 1532.5$ $n_{17} = 6$	$\Sigma R_{18} = 2429.5$ $n_{18} = 15$
Type II		$\Sigma R_4 = 1364.5$ $n_4 = 6$	$\Sigma R_5 = 1563.5$ $n_5 = 6$		$\Sigma R_{19} = 1350$ $n_{19} = 8$	$\Sigma R_{20} = 863.5$ $n_{20} = 6$
Type III		$\Sigma R_6 = 1716$ $n_6 = 8$	$\Sigma R_7 = 1865.5$ $n_7 = 8$		$\Sigma R_{21} = 1900.5$ $n_{21} = 14$	$\Sigma R_{22} = 846.5$ $n_{22} = 6$
Type IV		$\Sigma R_8 = 776$ $n_8 = 4$	$\Sigma R_9 = 1455$ $n_9 = 7$		$\Sigma R_{23} = 491$ $n_{23} = 5$	$\Sigma R_{24} = 552.5$ $n_{24} = 4$
Type V		$\Sigma R_{10} = 3676$ $n_{10} = 20$	$\Sigma R_{11} = 3030$ $n_{11} = 13$		$\Sigma R_{25} = 1620.5$ $n_{25} = 14$	$\Sigma R_{26} = 953.5$ $n_{26} = 8$
Two Types		$\Sigma R_{12} = 2055.5$ $n_{12} = 9$	$\Sigma R_{13} = 2931$ $n_{13} = 13$		$\Sigma R_{27} = 2606$ $n_{27} = 16$	$\Sigma R_{28} = 2945.5$ $n_{28} = 16$
Three or More		$\Sigma R_{14} = 1200.5$ $n_{14} = 6$	$\Sigma R_{15} = 5905.5$ $n_{15} = 26$		$\Sigma R_{29} = 1309$ $n_{29} = 7$	$\Sigma R_{30} = 3567$ $n_{30} = 24$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots \cdot \frac{(\Sigma R_{30})^2}{n_{30}} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(3855.5)^2}{16} + \frac{(2707)^2}{11} + \frac{(3731)^2}{17} + \frac{(1364.5)^2}{6} + \right.$$

$$\frac{(1563.5)^2}{6} + \frac{(1716)^2}{8} + \frac{(1865.5)^2}{8} + \frac{(776)^2}{4} + \frac{(1455)^2}{7} +$$

$$\frac{(3676)^2}{20} + \frac{(3030)^2}{13} + \frac{(2055.5)^2}{9} + \frac{(2931)^2}{13} + \frac{(1200.5)^2}{6} +$$

$$\frac{(5905.5)^2}{26} + \frac{(5995)^2}{46} + \frac{(1532.5)^2}{6} + \frac{(2429.5)^2}{15} + \frac{(1350)^2}{8} +$$

$$\frac{(863.5)^2}{6} + \frac{(1900.5)^2}{14} + \frac{(846.5)^2}{6} + \frac{(491)^2}{5} + \frac{(552.5)^2}{4} +$$

$$\frac{(1620.5)^2}{14} + \frac{(953.5)^2}{8} + \frac{(2606)^2}{16} + \frac{(2945.5)^2}{16} + \frac{(1309)^2}{7} +$$

$$\left. \frac{(3567)^2}{24} \right] - 3(365+1)$$

$H = 28.3712$ which with 29 df gives a P less than .05.

TABLE XLVII

KRUSKAL-WALLIS ONE WAY ANALYSIS OF VARIANCE OF STEP WRITING SCORES RELATED TO THE DEGREE OF PARTICIPATION
IN THE VARIOUS TYPES OF ACTIVITIES BY STUDENTS OF DIFFERENT SOCIO-ECONOMIC CLASSES

Type of Activity	Socio-Economic Class I			Socio-Economic Class II		
	No Participation	Low Participation	High Participation	No Participation	Low Participation	High Participation
None	$\Sigma R_1 = 2629.5$ $n_1 = 16$			$\Sigma R_{16} = 4510.5$ $n_{16} = 46$		
Type I		$\Sigma R_2 = 2446.5$ $n_2 = 11$	$\Sigma R_3 = 3175$ $n_3 = 17$		$\Sigma R_{17} = 851.5$ $n_{17} = 6$	$\Sigma R_{18} = 2337$ $n_{18} = 15$
Type II		$\Sigma R_4 = 1535$ $n_4 = 6$	$\Sigma R_5 = 1231$ $n_5 = 6$		$\Sigma R_{19} = 1107$ $n_{19} = 8$	$\Sigma R_{20} = 1386$ $n_{20} = 6$
Type III		$\Sigma R_6 = 1839$ $n_6 = 8$	$\Sigma R_7 = 1598$ $n_7 = 8$		$\Sigma R_{21} = 2016.5$ $n_{21} = 14$	$\Sigma R_{22} = 862.5$ $n_{22} = 6$
Type IV		$\Sigma R_8 = 924$ $n_8 = 4$	$\Sigma R_9 = 1904.5$ $n_9 = 7$		$\Sigma R_{23} = 326.5$ $n_{23} = 5$	$\Sigma R_{24} = 533$ $n_{24} = 4$
Type V		$\Sigma R_{10} = 4427$ $n_{10} = 20$	$\Sigma R_{11} = 3808$ $n_{11} = 13$		$\Sigma R_{25} = 1669$ $n_{25} = 14$	$\Sigma R_{26} = 1085$ $n_{26} = 8$
Two Types		$\Sigma R_{12} = 2417$ $n_{12} = 9$	$\Sigma R_{13} = 3640.5$ $n_{13} = 13$		$\Sigma R_{27} = 2510.5$ $n_{27} = 16$	$\Sigma R_{28} = 3520$ $n_{28} = 16$
Three or More		$\Sigma R_{14} = 1174$ $n_{14} = 6$	$\Sigma R_{15} = 5751.5$ $n_{15} = 26$		$\Sigma R_{29} = 1394$ $n_{29} = 7$	$\Sigma R_{30} = 4186$ $n_{30} = 24$

$$H = \frac{12}{N(N+1)} \left[\frac{(\Sigma R_1)^2}{n_1} + \frac{(\Sigma R_2)^2}{n_2} + \cdots \cdot \frac{(\Sigma R_{30})^2}{n_{30}} \right] - 3(N+1)$$

$$H = \frac{12}{365(365+1)} \left[\frac{(2629.5)^2}{16} + \frac{(2446.5)^2}{11} + \frac{(3175)^2}{17} + \frac{(1535)^2}{6} + \right.$$

$$\frac{(1231)^2}{6} + \frac{(1839)^2}{8} + \frac{(1598)^2}{8} + \frac{(924)^2}{4} + \frac{(1904.5)^2}{7} +$$

$$\frac{(4427)^2}{20} + \frac{(3808)^2}{13} + \frac{(2417)^2}{9} + \frac{(3640.5)^2}{13} + \frac{(1174)^2}{6} +$$

$$\frac{(5751.5)^2}{26} + \frac{(4510.5)^2}{46} + \frac{(851.5)^2}{6} + \frac{(2337)^2}{15} + \frac{(1107)^2}{8} +$$

$$\frac{(1386)^2}{6} + \frac{(2016.5)^2}{14} + \frac{(862.5)^2}{6} + \frac{(326.5)^2}{5} + \frac{(533)^2}{4} +$$

$$\frac{(1669)^2}{14} + \frac{(1085)^2}{8} + \frac{(2510.5)^2}{16} + \frac{(3520)^2}{16} + \frac{(1394)^2}{7} +$$

$$\left. \frac{(4186)^2}{24} \right] - 3(365+1)$$

H = 104.0608 which with 29 df gives a P greater than .001.

VITA

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Candidate for the Degree of

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