A MEASUREMENT OF SOCIAL STUDIES ACHIEVEMENT
IN THE PRIMARY GRADES

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A MEASUREMENT OF SOCIAL STUDIES ACHIEVEMENT
IN THE PRIMARY GRADES

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By

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CHAPTER I

INTRODUCTION

One of the major aims of education in the schools of America today is to preserve and extend democratic ideals and develop the highest degree of democratic behavior in each child. In many schools social studies are the core for the development of social learnings that are vital to democratic living. All subject areas in the elementary school help to develop social competencies needed in democratic living, but social studies play a major role in this task due to the nature of experiences and knowledges covered. Therefore, since the social studies are identifiable and recognized curriculum areas, achievement should be measured and evaluated as accurately as possible.

Statement of the Problem

The problem of the study was to develop an instrument to measure achievement in social studies in the primary grades. Solving this problem involved the following sub-problems:

A. Establishing content or curricular validity for the measuring instrument.
1. The objectives of social studies in the primary grades were determined from statements of professional organizations concerned with social studies.

2. Social studies objectives were also derived from analyses of twenty current courses of study and instructional materials developed in various school systems.

3. The objectives of social studies were determined from a study of textbooks for the primary grades in which social studies content is presented.

4. A list of social studies concepts to be learned by primary grade children was derived from other research.

5. Social studies concepts, skills, knowledges, understandings, and action patterns that may be measured were compiled from the above sources.

6. A detailed outline of content which the test would cover was prepared.

7. Test items for the measurement of social studies achievement in the primary grades were made.

8. Original test items, preceded by the specific objective covered by each item, were evaluated by a jury or panel of twenty experienced teachers, five at each grade level.
B. Establishing statistical reliability and validity for the measuring instrument.

1. A pilot study included the following:
   a. Initial test items were tried out on all the students in two classes from each of the first four grades.
   b. The scores on the 132-item social studies instrument developed for the pilot study were compared with the California Test of Mental Maturity on the same students.
   c. A split-half correlation was computed to further determine validity.
   d. The scores on the 132-item social studies instrument developed for the pilot study were correlated with the California Achievement Test for the primary grades and with the work-study skills section of the Iowa Test of Basic Skills for the third and fourth grades.
   e. The top 50 per cent of students in performance on the social studies test developed for the pilot study were correlated with the bottom 50 per cent, with division based on test performance on the California Test of Mental Maturity.
f. All students having an intelligence quotient of 96 to 104, inclusive, on the California Test of Mental Maturity were grouped by grade levels, and from the performance of this group were determined test items for the final test.

g. An item profile using the tetrachoric correlation method was used to further delete in the selection of test items.

2. A final study included the following:

a. The final selection of sixty test items developed for the final study were given to students in four classes of each of the primary grades and the fourth grade. These students were selected from four separate but representative schools.

b. The social studies instrument developed for the final study was correlated with the California Test of Mental Maturity.

c. A split-half correlation was computed to further determine validity.

d. The social studies instrument developed for the final study was correlated with the California Achievement Test for the primary grades and with the work-study skills section of the Iowa Test of Basic Skills for the third and fourth grades.
e. The top 25 per cent of students, based on mental maturity, were compared with the bottom 25 per cent, based on mental maturity, by grade levels and by test performance on the social studies instrument developed for the final study.

f. The top 50 per cent of students determined by mental ability were compared with the bottom 50 per cent by grade levels and by test performance on the social studies instrument developed in this study.

C. Determining reliability for the measuring instrument.

1. The kind of items to which primary-grade children can respond was determined.

2. The coefficient of reliability by split halves was determined.

3. The standard error of measurement of the means of the scores made by children on the social studies instrument developed in this study was determined for each grade level.

The Setting of the Study

The locale selected for this study was a large metropolitan area of approximately 450,000 people. The scholastic enrollment was nearly 71,000, of which more than 32,000 were white elementary
school children, at the beginning of the 1962-1963 school term. The first three primary grades comprised more than 15,000 of the total elementary school scholastic enrollment.

Purpose of the Study

The study was concerned with the compilation of (1) measurable objectives that are concerned with social studies achievement in the primary grades, (2) learnings which should be derived from education to help each pupil attain those basic objectives, and (3) those test items which will yield the required results.

Basic Assumption

The basic assumption made relative to this study is that the objectives of primary-grade social studies as represented by students' acquisitions of knowledges, skills, understandings, and concepts are identifiable and measurable.

Hypotheses

In developing an instrument for the measurement of social studies achievement in the primary grades, the following hypotheses were tested:

1. There is a relationship between social studies achievement of primary-grade children as measured by the instrument developed in this study and the California Test of Mental Maturity.
2. There is a significant difference in social studies achievement between students of high mental ability and students of low mental ability at each grade level.

3. There is a significant positive correlation between the social studies achievement of primary grade children as measured by the instrument developed in this study and total achievement of the same children on the California Achievement Test.

4. There is a significant positive correlation between the social studies achievement of third- and fourth-grade children as measured by the instrument developed in this study and achievement of the same children on the Iowa Test of Basic Skills, section W.

5. As measured by the instrument developed in the present research, there is a difference in social studies achievement of children within each grade and a difference between grade levels.

6. There is a positive correlation between social studies achievement as measured by split halves of the instrument developed in this study.

Background and Significance of the Study

The duty of the primary school is to provide a broad, general education through a background of concepts, knowledges, skills, habits, attitudes, interests, and appreciations which are considered fundamental or basic in the lives of all democratic peoples.
The child is born into a social environment to which he must adequately adapt himself in order to be a worthwhile citizen. In this process of adaptation all activities should give practice in social adjustment.

In present educational practice, the adequate social development and the process of socializing the child has not attained the importance that it should have in the school lives of children (7, p. 3). The very beginnings of social studies are the roots and chief means for furthering social development. Social studies, therefore, should be emphasized due to its importance in the primary grades. To date, however, research in social studies development, evaluation, and application has been confined to the intermediate, junior high, and high school grades. The primary grades are seldom even mentioned in literature of research even though the primary grades are the child's foundation for all future studies and learnings. Social studies evaluation in the elementary school has been greatly neglected.

Even the aims of social studies in general have "undergone rather limited research" (5, p. 1298). In spite of changing times and the advent of a new era of nuclear and scientific advances, there is evidence that social studies objectives in the elementary school have remained fairly fixed (5, p. 1298).
There is little justification for this long period of neglect. It has been argued that the primary grade child has a meager vocabulary and little knowledge of social studies. The first argument, concerning limited sight vocabulary, could be attacked by the compilation of tests based upon pictures and visual discrimination dependent upon conceptualization. A simple test which the teacher could read to the class might also be formulated.

The second argument, that the child has little knowledge of social phenomena, is highly erroneous (8). It is true that the child's concepts are not clearly defined and are still vague. But this is true at any stage of life when new problems are met.

One of the major researchers in social studies achievement evaluation, Joy Muchmore Lacey (7), states that primary grade children do have fixed concepts about many things and that instruments can be devised to test those concepts.

Writing concerning testing in the social studies, J. Wayne Wrightstone (9, pp. 209, 315) points to the need for "newer and more inclusive means of evaluation," and demonstrates specific ways in which social studies evaluation methods may be devised by the classroom teacher.

Oscar Krisen Buros (2) lists no tests concerning social studies, history, or geography for the primary grades in Tests in Print. Buros points out the lack of existing tests in any form in social studies for the primary grades in the Fourth
Mental Measurements Yearbook (4) and lists no test concerning social studies in the more recent Fifth Mental Measurements Yearbook (3). This points to the lack of social studies evaluative instruments for the primary grades.

Nolan C. Kearney (6), editor for the most recent research in elementary concepts, compiled by the Mid-Century Committee on Outcomes in Elementary Education, has stated that many goals in elementary education are so specific that measurement of achievement can be done with precision, while other goals require broader evaluation.

Ahmann, Glick, and Wardeberg (1) not only list the values of standardized social studies tests but also give tables showing measurable objectives in the elementary school.

Numerous writers have pointed to the need for research into methods for evaluation of social studies achievement in the primary grades. Several writers have indicated that such evaluation can be done, while others have even given methods by which evaluation should be made.

Limitations of the Study

The following general limitations were imposed:

1. The study was limited to the study of social studies achievement in four sections of each of the first four grades spread among four representative schools in a large metropolitan area during the school year 1962-1963.
2. The study was confined to the consideration of measurable objectives and test items that relate to social studies achievement in the primary grades.

3. The study was limited to measurable achievement of social studies in terms of knowledges, skills, concepts, and understandings.

4. This research was further limited to the development of an instrument to measure social studies achievement in the primary grades.

5. The term social studies was limited to the content usually taught in the primary grades whether it came from the social sciences or natural sciences. No fine line of distinction was drawn between elementary science and social studies.

Collection of Data

All data used in the study were collected as follows:

1. Primary-grade social studies objectives were obtained from curriculum content, textbook goals, and authoritative source materials concerning social studies in the primary grades.

2. Primary-grade social studies concepts were collected from the above sources and from research data.
3. The California Test of Mental Maturity was administered and scored, and the intelligence quotient of each student tested was determined.

4. The California Achievement Test was administered to grades one, two, three, and four, and the Iowa Test of Basic Skills to grades three and four. From these tests were determined the total achievement scores made by each student tested. On the Iowa test only section W was selected for use because it is more related to social studies.

5. The instrument developed in this study was administered and scored.

Procedures and Treatment of Data

The procedures of this research included several sub-problems related to validity and reliability. The two kinds of validity that were used are (1) content or curricular validity, and (2) construct or statistical validity. Reliability was concerned with content reliability through adequate investigation into the universe of content and through internal consistency.

The procedures for establishing validity and reliability were as follows:

1. Goals and objectives for social studies teaching in the primary grades were determined. From various sources came
the master lists. Statements of goals and objectives from the following sources were examined:

a. Educational Policies Commission
b. National Council for the Social Studies
c. National Society for the Study of Education
d. Texas Education Agency.

2. From this study a master list of objectives was developed. The master list of objectives was made into a check chart so that goals and objectives which were found in outstanding courses of study could be compared with them.

3. Since many of the objectives listed in the master check list are not measurable in terms of this research, a study was made of measurable elementary school objectives as presented by the Mid-Century Committee on Outcomes in Elementary Education, edited by Nolan C. Kearney (6). From this work was determined a list of social studies objectives for the primary grades which are measurable in terms of the present research. Fifty of these measurable objectives were obtained. These fifty measurable objectives were organized under the four larger headings used by the Educational Policies Commission in classifying objectives.

4. A study was made of social studies subject matter content for coverage of knowledges, skills, concepts, and understandings which are presented to primary grade children. From
this a content outline was made. Various items of content were organized and placed under the objective to which each item was related. From this content outline test questions were made to represent the subject matter related to each of fifty objectives.

5. A list of 349 test questions, organized under the various objectives, were presented to a group of experienced teachers and college professors for the purpose of getting their responses to the following questions:
   a. Is the item too difficult for primary children?
   b. Is the statement clear?
   c. Does the question measure the stated objective?
   d. Are any of the alternate questions confusing?
   e. Is the marked answer the one you judge to be correct?
   f. Can you think of a better answer to the question?
   g. Do you have any comment?

6. After the evaluation and reworking of test items, 290 questions were selected for a tryout on 176 primary-grade children. The results were analyzed and only those items were retained that met the following requirements: (1) each was related to an objective; (2) each discriminated between grade levels; and (3) each was neither too easy nor too hard for all grade levels combined. From this research action the social studies
A test of 132 items was administered to two classes from each of the first four grades in one school. A total of 212 scholastics participated. The results obtained from this testing were compared with the California Test of Mental Maturity on the same children. These comparisons were made:

a. The scores made on the social studies instrument developed for this pilot study by children in the upper 50 per cent, based upon mental ability, were compared with the lower 50 per cent of children on the same basis.

b. The scores made on the instrument developed in this research by children in each grade level were compared with the scores made by children in every other grade level.

c. The scores made on the 132-item instrument developed for the pilot study by children in the primary grades were compared with performance of the same children on the California Achievement Test.

d. A split-half correlation was computed.

e. The scores made by children in the third and fourth grades on the social studies instrument developed for the pilot study were compared with the performance of the same children on section W of the Iowa Test of Basic Skills.
8. A further analysis of test results was made by selecting the group of children at each grade level whose intelligence quotient ranged from 96 to 104, inclusive. From this select group an item count was made on each test question to determine the number of correct responses for each item at each grade level. All items to be retained for the final study came from this survey and were at the 50 per cent level of difficulty for the middle group.

9. An item analysis was made that consisted of item counts of correct responses of both top and bottom groups of students, in terms of mental ability, at each grade level. These counts were changed to percentages and tetrachoric correlation was computed for each item at each grade level. The cut-off point of .40 was adopted. As a result of this analysis a test of sixty items was compiled for the final study.

10. The sixty-item social studies instrument developed for the final study from the above research was administered to four groups from each of the first four grades. The four schools were selected in such a way that each would be representative. Each of the four elementary education consultants selected a representative school from her area of the city. Selection was based primarily upon the total achievement of the children of that school upon the California Achievement Test.
Scores made by the first-, second-, third-, and fourth-grade children on the sixty-item social studies instrument developed for the final study were compared with the scores made by the same children on the California Test of Mental Maturity, with the California Achievement Test, and with section W of the Iowa Test of Basic Skills. The Iowa test was given only to grades three and four and is especially important because it has one section W related to maps, graphs, and references and is more representative of social studies concepts. The results of these tests were analyzed in a number of ways; namely:

a. The correlation was computed between scores made on the social studies instrument developed for the final study by children in all four grades and the California Test of Mental Maturity. The results of this procedure were used to test hypothesis number 1.

b. Correlations were computed between students of high mental ability and low mental ability within each grade level and based upon performance on the social studies instrument developed for the final study. This procedure resulted in a test of hypothesis number 2.

c. The correlation was computed between scores made on the instrument developed in this study by children in the first four grades and their performance on the California Achievement Test. The results of this procedure were used to test hypothesis number 3.
d. The correlation was computed between scores made on the instrument developed in this study by children in the third and fourth grades and their performance on the *Iowa Test of Basic Skills*, section 6. The results of this procedure were used to test hypothesis number 4.

e. The correlation was computed between scores made on the instrument developed in this study between grade levels, and between the scores of top and bottom students, in terms of mental ability, within grade levels. The results of this procedure were used to test hypothesis number 5.

f. The correlation was computed between split halves on the instrument developed in this study. The results of this procedure were used to test hypothesis number 6.

g. A procedure was used for determining the phi coefficient for each item at each grade level. The cut-off point of 5 per cent was established.

**Summary**

In the preparation of an instrument for the measurement of social studies achievement in the primary grades of a metropolitan area, a genuine effort was made to ascertain the most effective and useful methods. The validity of the social studies instrument developed in this study was of prime concern. Validity
received extensive treatment through curricular and statistical research. Analysis of the social studies items developed for the evaluative instrument used in this research was approached in a definitive manner. Reliability was of great concern; therefore, efforts were made to make the social studies instrument as dependable as possible without sacrificing validity.
CHAPTER BIBLIOGRAPHY


CHAPTER II

REVIEW OF RESEARCH RELATED TO THE MEASUREMENT OF
SOCIAL STUDIES ACHIEVEMENT IN THE
PRIMARY GRADES

Research related to the measurement of social studies achievement in the primary grades is limited. Therefore, the era prior to 1938, when the Educational Policies Commission established specific objectives for the social studies, will be treated as early studies, while research after 1938 for the purpose of this study will be termed as more recent research.

Early Studies

Research in the social studies prior to 1916 was directed toward emphasis upon formal methods, theories, and general unrealistic objectives (9, p. 113). The first published evaluative instruments for the social studies appeared in the areas of history and geography for high schools between 1914 and 1920 (8, p. 123).

In 1920 many new tests appeared in social studies, but none were for the primary grades. After 1930 fewer tests were
published because schools were changing to complete batteries of tests on achievement. From 1914 to 1933 research in the social studies was "characterized by herculean efforts towards objectivity" (9, p. 1131). Many varied techniques were devised for the selection of textbooks, curriculum content, objective tests, and courses of study in this period, but none were devoted to the primary grades.

In Europe Van der Toren tested children from ages 4 to 8 with pictures and found that boys excelled girls and that power of recognition increased with age (7, p. 39). Frau and Herr Schober (7, p. 39) developed social studies picture tests that differentiated between different social classes. The conclusions of this study were that upper classes were noticeably superior over proletariat. Social differences seemed more marked among younger children, whereas 7 and 8 year old children were nearly equal. The inference given was that school training does much to equalize social experiences.

More Recent Research

Following the trend of picture tests to determine social studies achievement, Joy Muchmore Lacey (7) did extensive research into the social studies concepts of children in the first three grades. The object of this research was to ascertain what information or misinformation children have about the world in which they live, in order to select and organize adequate
learning experiences. This involved making check lists or tests about the particular meanings behind the general concepts in children's minds. The study revealed some of the things children know about their social world and a limited amount of information and misinformation that certain children have about common things.

The scope of the study ranged from the home and community life, nature interests, great people, and inventions to great events. Concepts were reduced to 125 words, which were reduced to pictures. Since pictures were used for the final test, all reading difficulties were eliminated. No correlations were made with other tests, nor were comparisons given.

Although testing of social studies achievement in the primary grades was neglected, some progress was being made toward identification of the major aims, goals, and objectives of the first three grades. In 1938 the Educational Policies Commission set forth four broad categories of social studies objectives for all grade levels. From this primary source most courses of study seem to derive their major goals and objectives. Also, this set the trend for the present-day pattern of social studies objectives.

The era from 1933 to 1950 was characterized by an emphasis upon the broad, general objectives, rather than specific or individual objectives (9). Kelley and Krey (6) published a
comprehensive volume on evaluation in the social studies in a report to the Commission for the Social Studies. In this work the need was stressed for a new type of social studies test in which concepts would relate to exact information, understanding, skills, and attitudes. But even this comprehensive material made no mention of the primary grades.

Reviews of research prior to 1950 reveal that the objectives of social studies bear a great deal of similarity due to lack of research (4, p. 1290). The most recent attempt to state the general objectives of the elementary school was made by the Mid-Century Committee on Outcomes in Elementary Education in Elementary School Objectives, edited by Nolan C. Kearney (5). Thirty-four well-known educators were enlisted in the development of the objectives of elementary education which are important enough to warrant the direct efforts of schools and teachers. An even greater contribution of this research staff was the placement of measurable objectives into actual levels of difficulty and probable levels of achievement in attaining them. Altogether the goals are specified as being too difficult for the average child, and only the most advanced children will achieve all of the goals. Not only are the various objectives divided by grade levels, but they are further divided into the areas of (1) knowledge and understanding, (2) skill and competence, (3) attitude and interest, and (4) action pattern.
Although an instrument for the measurement of social studies achievement in the primary grades is not available, numerous tests of this type have been made for the upper grades by various testing companies. However, such information is kept confidential and is not available for public scrutiny as to the methods used in validation studies. Merely statistical reports are given in the final analysis, and this usually appears years after the original test is compiled and published.

One such study is that made by the California Test Bureau in its research center at Del Monte Park in Monterey, California. This study is reported here because it is believed to be one of the most comprehensive series of research studies available. Dual standardization of both the California Achievement Tests and the California Tests of Mental Maturity was based on more than 1,200 independent class samples from forty-eight states. This resulted in controlled norms and provided data for the interpretation of achievement results in relation to age, grade, and mental ability (2, p. 19). Validity on the California Achievement Tests was determined by three varied approaches; namely, (1) Achievement versus Mental Maturity, (2) California Achievement Tests versus Other Achievement Tests, and (3) Achievement versus Grade Relationships (1, p. 26). For these tests curricular or content validity was
"pre-determined by the courses of study of a large number of schools" (1, p. 29).

Many testing companies have compiled similar material on tests for the upper grades, but none is as comprehensive and extensive as the California Achievement Tests. For this reason, certain parts of the test compilation pattern have been closely incorporated in this study.

Summary

In this chapter the limited background of research related to the measurement of social studies achievement in the primary grades has been presented. The evidence indicates the apparent lack of research in social studies achievement for the primary grades. Although research to the present time has been limited, there is reason to believe that public demand for scientists and for more scientific study in schools will force a change in future evaluation.


CHAPTER III

CURRICULAR VALIDITY

In the development of a measuring instrument, validity is of the greatest importance. If a measuring instrument does not measure what it intends to measure, it is of little use. In the development of achievement tests two kinds of validity are usually required; namely, curricular or content validity and construct or statistical validity. Curricular validity is usually accomplished by determining objectives and the content related to those objectives. Statistical validity and reliability are usually determined by studies of the results of the administration of test items.

In the present research, curricular validity was established by combining and correlating all major objectives of social studies education for the primary grades with curriculum content. This involved analyses of (1) works of professional organizations, (2) reviews of research literature, (3) courses of study, (4) state adopted textbooks for the grades involved, (5) evaluative judgment of experts, and (6) experimental tryout of test items.
Leading the list of professional organizations was the Educational Policies Commission of the National Education Association (7, pp. 157-277), which set forth as early as 1938 a broad general list of objectives for the elementary school. All objectives were placed under four large category headings; namely, (1) Civic Responsibility or American Heritage, (2) Human Relations, (3) Our Natural Environment, and (4) Self-realization. Although there is wide variation from city to city and from state to state as to the manner in which these basic goals of social studies are worded, the "basic objectives for social studies are similar in nature" (5, p. 8).

Another learned organization that has recently contributed extensively to the advancement of elementary school education through exhaustive research into elementary school objectives is the Russell Sage Foundation. In 1950 this organization endowed the Mid-Century Committee on Outcomes in Elementary Education with funds to assemble and describe the measurable goals of the elementary school. Educational Testing Service realized the need and joined in the search for a general consensus of educators as to the needs and objectives of the elementary school. The United States Office of Education and the Department of Elementary School Principals of the National Education Association joined in this vast undertaking. From this research came the basis
of measurable objectives that could be used in the present study.

The broad general categories as described by the Educational Policies Commission were used as the framework for the present research. Each of the measurable objectives described by the Mid-Century Committee was placed under the category that seemed most suitable. The following list was thus obtained:

I. American Heritage and Civic Responsibility

1. The child should realize that privileges and freedoms involve responsibilities.

2. The child should understand democratic procedure, including laws, rules, and regulations that exist so that lives may be safer and happier.

3. The child should know about the Constitution of the United States, the framework of democratic government, and the traditions that have united to make up the American way of life.

4. The child should know that the conscious and expressed bias in America is for democracy and belief in a Supreme Being.

5. The child should be developing skill and competence in recognition and expression of values and should know the basic rules in concepts of fair play, ownership of property, theft,
trespassing, and the responsibility of the finder of lost
articles.

6. The child should respect the rights, privileges, and individuality of others.

7. The child should know something about the culture and life of the American Indian and the Eskimo.

8. The child should show interest in colonial people, how they lived, and the ways of living in early days in his country and other lands, and should be able to tell short stories about historical happenings.

9. The child should show awareness that some organizations and agencies are granted authority to help protect the welfare and safety of the community, state, and nation.

10. The child should understand the general process of electing officers within his group and should know the rules of team games in which he participates and be able to help in the formulation of rules for group behavior governing the rights, properties, and personalities of his group.

II. Human Relations: Appreciations of and Cooperation with Other Peoples and Nations

11. The child should be cooperating with others to improve life in his home, school, and community, and show awareness of responsibility to the group by his kindness, cooperation, attentiveness, and courtesy.
12. The child should be developing a sense of fair play, ability to distinguish between truth and dishonesty on an elementary level, and should show respect for rules, regulations, and authority.

13. The child should know that every race and religion is entitled to respect and that social tolerance requires the ability to accept difference in speech, manners, and grooming.

14. The child should know about the more familiar occupations of many persons in his community.

15. The child should be able to organize or classify the occupational activities of various people under major headings of work.

16. The child should be able to tell how people in one occupation are dependent upon many others and show awareness of the interdependence of all people.

17. The child should understand the roles of teachers, principals, school adults, members of the family, public servants in the community, schools, and how these affect his life and the lives of others.

18. The child should know something about important people, things, and events in his community, city, state, country, and other countries.
III. Our Natural Environment

19. The child should understand the relationship between seasonal changes and the way people work, live, dress, and eat.

20. The child should begin to understand how people have become adapted to their environment by contrasting the various modes of living with present ways of living.

21. The child should have some rudimentary knowledge of the basic processes of nature and how they influence man's life.

22. The child should know about common pets, farm animals, local plants, flowers, and crops, and be aware of the dangers of strange cats, dogs, and animals at the zoo.

23. The child should know that plants and animals provide food for man and should be able to relate how foods are kept safe and pure.

24. The child should know about the foods of many common animals and the products that plants and animals provide man—as food, shelter, and clothing.

25. The child should be familiar with many of the common animal and insect pests and poisonous plants.

26. The child should know the use of trees for providing beauty, fruit, food, and shade.
27. The child should understand that plants and animals are interdependent and make adaptations to their environment.

28. The child should be using many simple tools correctly and should be able to show the difference between doing work with simple tools and with large machines.

29. The child should be learning about simple machines and the scientific backgrounds to transportation and communication of such machines.

30. The child should know the value in using fire, knives, machinery, and fertilizer.

31. The child should become increasingly curious, interested and inquisitive about the sky, the earth, weather, conservation, science collections, protection and care of birds and other animals, pictures of plants and animals from wide regions, and the natural world around him.

IV. Self Realization

32. The child should have a growing geographical vocabulary and simple knowledge of certain basic words.

33. The child should be aware of the world as a globe.

34. The child should be acquainted with simple natural geographical features, as mountains, islands, lakes, rivers, streams, oceans, and ponds, and more so if they are in his immediate environment.
35. The child should be able to understand and relate simple maps of his neighborhood, city, and expanding community, and have some understanding of the main divisions and regions.

36. The child should have a beginning skill in locating places on maps and be able to measure accurately with rulers and simple instruments.

37. The child should have some knowledge of the relationship of the earth to the sun, moon, and stars.

38. The child should be able to identify and solve simple problems and should be able to make simple generalizations on the basis of observation and experimentation.

39. The child should have simple skill in reporting his observations and conclusions about plants, animals, and simple physical science phenomena.

40. The child should be able to give simple directions clearly and work out some problems independently and should be able to differentiate between fact and fancy.

41. The child should know brief stories about a few of the great men of science and should show desire for information about construction, transportation, communication, astronomy, warfare, and industrial processes.

42. The child should be able to answer in simple terms such questions as: What makes rain fall? What happens to water when it freezes? What causes dew in the morning? What happens to water in a teapot when it evaporates?
43. The child should be able to make hypotheses in a simple manner.

44. The child should understand that numbers must apply to a quantity of something to have meaning.

45. The child should be able to apply numbers to the days of the week, months of the year, a dozen eggs, pennies in a dime, nickel, quarter, or dollar, minutes in an hour, inches in a foot, feet in a yard, and pints in a quart, as these relate to his past experiences.

46. The child should be acquiring the vocabulary to respond to simple questions about the environment.

47. The child should begin to understand that he has strengths and weaknesses and what he does well and what he does not do well, and awareness that people approve of efforts that are directed toward making the world a better place in which to live.

48. The child should engage in activities that help him conserve human and natural resources and property and should know how and why to practice safe behavior in crossing streets and how to manage fire properly.

49. The child should be showing a growing understanding of why children and adults behave as they do and should understand that for successful group living there must be cooperative group planning, consideration, and sharing of responsibilities. The child should be showing awareness of group interdependence.
50. The child should show awareness and concern with maintaining his health and safety and the health and safety of the community, as well as being aware of the value of good food, pure air, proper exercise, clean hands, adequate sleep, clean teeth, and the value in simple preventive medication. The child should know how infections spread and that contents of medicine bottles and things that look edible may be poisonous.

The placement of each of the fifty objectives under the four major divisions of objectives above was arbitrary. Many objectives may be related to one division as well as another.

Reviews of Research Literature

Further investigation was made to determine from the reviews of other research literature the measurable objectives of social studies for the primary grades. Notable among researchers was Lacey, whose study is reported in Chapter II, under related research, along with all pertinent research concerning the evaluation of the social studies in the primary grades.

Curriculum Guides

Many courses of study or curriculum guides have been endorsed by various learned organizations. For the purpose of this study, only those guides listed by the National Council for
the Social Studies (2, 5, 7, 8, 10) and the National Society for the Study of Education (3) were used in the present research.

Michaelis (8) analyzed the social studies goals found in forty-four courses of study and found great overlapping. Most of the study guides used in the present research seem to have drawn heavily from the broad objectives listed by the Educational Policies Commission.

A list of the curriculum guides used in this research is to be found in Appendix A. These guides were used in the following manner: The Texas Education Agency's social studies curriculum guide was selected as being more or less typical of the over-all broad objectives. From this work was taken a list of elementary school objectives, which the agency had placed under the four broad headings given by the Educational Policies Commission. The list was then expanded by the addition of five objectives taken from the Port Arthur social studies curriculum guide.

Using this master list of major objectives as a guide, each of the selected curriculum guides was analyzed as to points of agreement. When the agreement was evident an asterisk (*) was placed in the line where the objective bisected the column containing the name of the city or state furnishing the course of study. This work is shown in Tables I, II, III, and IV, found on the next four pages.
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<td>Appreciating the American Heritage, its origin, traditions, ideals, and achievements</td>
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<td>Possessing faith in and practicing democracy as a way of life and respecting it</td>
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<td>Recognizing the important place of the individual and civil rights in democracy</td>
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<td>Becoming sensitive to the individual's responsibility to the group, with freedom of individual expression and action</td>
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<td>Developing appreciation of the importance of home and family in a democratic society</td>
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<td>Understanding the processes and functions of all branches of government</td>
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<td>Realizing that the democratic form of government was gained through sacrifice and requires the individual to assume duties</td>
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<td>Recognizing the obligation of responsible participation in government</td>
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<td>Recognizing the role of education in a democracy</td>
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TABLE II
OBJECTIVES RELATING TO HUMAN RELATIONS FOUND IN SELECTED CURRICULUM GUIDES

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<td>Developing socially approved standards of conduct</td>
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<td>Understanding social and economic problems of all peoples</td>
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<td>Appreciating great past and present contributions from all areas of human effort</td>
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<td>Developing desires to recognize, conserve, and improve American resources</td>
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<td>Using knowledge of the past to interpret the present and to form generalizations</td>
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<td>Having faith in human resources and initiative</td>
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<td>Becoming aware that world peace and progress may be improved by cooperation</td>
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<td>Recognizing change in society but appreciating constant values</td>
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<td>Recognizing and understanding the demands of world interdependence</td>
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<td>Recognizing the effect of environmental influences on human behavior</td>
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<td>Understanding man's efforts to control his natural environment</td>
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<td>Achieving aesthetic appreciation of our natural environment</td>
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<td>Understanding natural forces and realizing the restrictions and opportunities such forces inflict on life</td>
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<td>Recognizing that conservation, wise use, and development of natural resources are all important</td>
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<td>Recognizing the need for improving material conditions and protecting life and health</td>
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### TABLE IV

OBJECTIVES RELATING TO SELF-REALIZATION FOUND IN SELECTED CURRICULUM GUIDES

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<td>Obtaining the knowledge and skills for interpretation of conditions and problems</td>
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<td>Learning historical facts and spirit of inquiry capable of judging truth from error</td>
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<td>Gaining skills to use geographic material, as maps and charts of everyday life</td>
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<tr>
<td>Discriminating between cause and effect in political and social developments</td>
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<tr>
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<tr>
<td>Realizing duties and responsibilities for all and assumption of duties at age level</td>
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<tr>
<td>Understanding and using vocational possibilities of social studies and worthy use of time</td>
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<tr>
<td>Recognizing need for acquiring moral and spiritual values and aesthetic appreciation</td>
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<tr>
<td>Recognizing the dignity and worth of each individual and his duty to society</td>
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</table>
Having thus exemplified the agreement of courses of study concerning the major objectives, it was necessary to determine the degree of agreement between objectives stated in curriculum guides and objectives stated in textbooks.

Textbook Content

The goals, scope, and sequence of all primary-grade textbooks adopted for the state of Texas and relating to social studies were reviewed, condensed, and combined, in order that textbook content would be more adaptable to correlation with the measurable objectives as outlined.

State adopted textbooks covering reading, social studies, science, health, and, whenever applicable, spelling, were examined. Since the field of social studies had no adoptions for the social studies for the first two grades, those companies planning to offer social studies textbooks for adoption next year were asked to furnish available texts. This made the study more effective and timely, and included the most recent research in science and social studies that will be incorporated in the curriculum in the near future. Arithmetic textbooks were not used because those objectives relating to time, space, quantity, sequence, and number are included in social studies goals.

The plan for establishing sequence that is most used for primary grade social studies programs is that of expanding
geographic areas of experience (3, p. 140; 4, p. 169). In this plan the kindergarten and first-grade children study the home and school. Then in the second grade they branch out into the neighborhood and community. In the third grade the study moves to the expanding community. In a recent survey of scope and sequence, Hodgson (4, p. 169) found overwhelming preference for use of the expanding community or environment as the method for internal organization of the entire social studies program.

Since the prime consideration of this study was that the social studies evaluative instrument being developed represent valid coverage of content, the main consideration here was that subject-matter information cover all fields with adequate sampling. To accomplish this the subject-matter content of textbooks used in the primary grades was surveyed and minute details were eliminated. The textbooks used in this procedure are listed in Appendix B. The subject-matter outline was reduced to the following comprehensive list:

Subject-matter Content of Textbooks Examined

Grade 1

Home and School

1. The family
2. The home
3. The school
4. Family and school helpers
5. Safe work and play

6. Animals
   a. pets
   b. wild animals

7. Farm life

8. Holidays and special days

9. Health
   a. good food
   b. care of the body

10. Seasonal changes

11. The postman

Grade 2

Neighborhood

1. Community helpers

2. The seasons

3. Conservation

4. Human relations

5. Interdependence

6. Cardinal directions

7. Holidays and special days

8. Use of fire

9. Health helpers
   a. doctor
   b. nurse
   c. sanitation
10. Food
11. Transportation
12. Safety
13. Communication
14. Men who work on houses
15. The playground
16. Pioneers
17. Our country
   a. the flag
   b. great men
   c. birthday
18. Uses of water
19. Shelter
   a. then
   b. now

Grade 3

Expanding Community

1. Food, shelter, clothing
2. Transportation
3. Communication
4. Recreation
5. Health and safety
6. Small towns, cities, farms, ranches
7. Conservation
   a. soil
   b. water
   c. other natural resources

8. New tools and techniques

9. Fire

10. Floods

11. Pioneers

12. Indians

13. Dairy farms

14. Fruit growers

15. Sheep ranches

16. Wheat growers

17. Fishing

18. Mining

19. Lumbering

20. Manufacturing

21. Man's heritage

22. Physical environment
   a. land features
   b. maps and graphs

23. Community, state, nation

24. Earning a living
   a. interdependence
   b. influencing conditions
25. Democracy
   a. meaning
   b. President

26. Respect for others
   a. cooperation
   b. sharing

Social studies textbooks are in comparative agreement in relation to the basic scope and sequence of content listed above. From this list of textbook content and the list of fifty measurable objectives listed on pages 30 through 37, numerous test items were formulated. Each objective received numerous test items in the original evaluative instrument. Test items were drawn so as to elicit as much thinking as possible, with factual items requiring memory skills being kept at a minimum. The items were compiled in the multiple-choice technique with each item having four alternate answers. The multiple-choice form has been shown by research to be the most useful in the evaluation of social studies achievement (9, p. 1234). Many of the incorrect alternate answers were supplied by children in the classroom. One of the most serious deficiencies of multiple-choice items is the faulty construction that permits testees to choose the correct answer because of verbal association, grammatical consistency, or use of irrelevant clues. The present research was
an effort to avoid such errors. Many items have answers so nearly alike that the student must think and draw conclusions in order to select the correct response.

Expert Evaluation

A jury or panel of twenty teachers and college professors was selected for critical evaluation of all original test items which were arranged under the objective to which each item was most related. Each teacher had at least five years of teaching experience at the given grade level. This group was asked to be judges of the test items and was asked to perform the following task:

The attached 349 multiple-choice test questions are each preceded by the objective being tested. Please feel free to comment, criticize, add to, or take from every item. This will be of great service. Please circle the answer which in your opinion is most correct. If two answers are equally correct, please circle both. If it will save you time, the following code may be used in the comment area. However, this is for your help, and it is immaterial whether you use it or not.

T. D. means too difficult for primary children,
N. C. means statement is not clear.
C. A. means alternate answers are confusing,
S. M. means the statement does not measure the stated objective.
The correct answers have been underscored in the following manner: The A, B, C, or D has a line under it if it was considered right. Any other symbols that you wish may be used. If you think of a better answer or question, please write it down.

If four fifths of the jury members responded in any one of the ways above, that item was eliminated or rewritten,
depending upon the nature of the comment. It was the considered opinion of more than half of the panel members that the area of elementary science concerning animals was neglected; therefore, eight new items covering this area were suggested by the panel and included in the study. Sixty-seven of the original items were eliminated due to excessive difficulty, duplication, confusing meanings, or failure to measure the objectives. The test items were now ready for a preliminary tryout.

**Preliminary Tryout**

The 290 remaining test items were administered to 178 children from the first three grades during the first two weeks of school during the fall of 1962. All children from two classes of each of the primary grades in one school participated in the preliminary tryouts. The following conclusions resulted from this procedure:

First, it was found that when a first-grade child did not know the correct answer, he marked the first answer in the list regardless of the meaning. When asked why the first answer was marked in preference to other answers, one child responded that the first was usually more important in anything. Several other children were in agreement with this statement. For this reason, the easier questions were revised so that the correct answer did not appear first.
Second, it was learned that many so-called distractors were not distractors at all. Revision was made so that every answer would receive some response. Children supplied many of the word changes for incorrect answers.

Third-grade children tended to select the most difficult wordings when they did not actually know the answer. When asked why, several responded that the reason they did not know the correct answer must be because they did not know the meaning of the hardest word in the answer. For this reason, several more difficult words, as geometry, geology, and biology, were added as incorrect alternates so that they would receive a proportion of responses after revision.

Another factor which had not been anticipated was that first- and second-grade children who have not been trained at school to read maps can effectively perform on simple map-reading skills. For this reason, the map questions were placed nearer the middle of the next test, instead of being the last and considered most difficult items.

Item analysis was made of the answers of the tryout group by item counts for each item at each grade level. This revealed the degrees of difficulty of each item by grade level so that the first pilot test would be in graduated levels of difficulty. Analysis was made of the span or degree of difficulty between
grade levels, purely by observation of the total numbers of correct responses. No intelligence quotients were used. From this tabulation came the final selection of retained items for the pilot study. All items that were passed or failed by chance (25 per cent) by the first-, second-, and third-grade children were eliminated due to the tryout, with the exception of a limited number of specially selected difficult items. A few such items were retained in order to discriminate at the fourth-grade level on the next testing.

Summary

In this chapter curricular validity was assessed by analysis and correlation of the major objectives of social studies education for the primary grades as found in research literature, courses of study, textbook content, judgment of experienced personnel, and an experimental tryout. Major objectives were defined in four broad categories, within the framework of which those measurable social studies objectives were assigned. From a combination of all the above-mentioned resources came a final list of 132 test items that appear to be curricularly valid for the purpose of measuring social studies achievement in the primary grades. Statistical validity and reliability remained to be ascertained.
CHAPTER BIBLIOGRAPHY


CHAPTER IV

STATISTICAL RELIABILITY AND VALIDITY OF THE
TEST DEVELOPED FOR THE PILOT STUDY

In order to determine the validity and reliability of the instrument developed in the pilot study, several investigative procedures were followed. These procedures were (1) collection of data, (2) determining validity, and (3) determining reliability.

Procedures Used in the Collection of Data

The social studies evaluative instrument developed for the pilot study was administered to two classes of children from each of the first four grades in a representative school in a metropolitan area. A total of 212 students were involved in this pilot study during the fall semester of 1962.

The same students were given the California Test of Mental Maturity. The purpose of this test was twofold. Not only were these scores used in the determination of both validity and reliability of the social studies instrument developed for the pilot study, but they served as a media for sorting students into given categories based upon the individual intelligence quotient.
After the intelligence tests were scored, teachers of the students were asked to express an opinion as to the accuracy of the mental ability test scores. Of the 212 students tested there were fifty-five questionable cases, wherein the individual classroom teacher believed the intelligence quotient to be either too high or too low. All questionable cases were then administered individually the Terman-Merrill Stanford-Binet, Form L, Intelligence Test. Of the fifty-five individual tests thus administered only seven deviated more than five points. Since there is that much difference in the fluctuation of the scores between the two tests involved, forty-eight scores were unaltered. However, the seven cases wherein the scores varied extremely were noted, and the higher intelligence quotient was recorded.

Intelligence quotients ranging from 96 to 104, inclusive, were selected at each grade level as being most representative of the group. The performance of this middle group was used in determining items to be retained for the final study. This precautionary step was taken to assist in the selection of the most representative test items which could be adequately answered by half of the average students within each grade level.

The 132 test items developed for the social studies evaluative instrument used in the pilot study were administered to the two groups of first-, second-, third-, and fourth-grade students. The responses of the group having intelligence scores
ranging from 96 to 104, inclusive, were sorted out and tabulated by grade levels as to the number of correct responses for each item. Using this information, thirty-three items were eliminated from the 132 total because they exceeded the 50 per cent level of difficulty. There was a remainder of ninety-nine test items to receive further analysis.

Students at each grade level in terms of mental ability were arranged in descending order from high to low. Each grade was then divided into two groups for each grade level. Division was made at the median intelligence quotient so that further comparisons could be made between high and low groups on all succeeding tests given.

The scores made on the social studies instrument developed for the pilot study were recorded beside each individual student's name, with the location predetermined by the descending order of intelligence quotients. All succeeding tests throughout this study were recorded in this manner.

Social studies scores made on the instrument developed for the pilot study were then tabulated by the number of correct answers to each test item. This was done for each of the four grade levels. Then the tallies of correct responses were converted into percentages of correct answers for each item for both the top 50 per cent of students in terms of mental ability and the bottom 50 per cent on the same basis. This was done
at each grade level. A tetrachoric correlation was determined in order to get a rough approximation of the degree of correlation of the scores made by students in the top 50 per cent and the bottom 50 per cent, in terms of mental ability, at each grade level. These correlations were also used in item discrimination from grade to grade.

From this survey an additional thirty-nine items were eliminated because they failed to discriminate adequately between the top and bottom groups at any grade level. A tetrachoric correlation of .40 was used as the discrimination index.

A study was made at this point to determine if a sufficient number of items remained to assure complete coverage of all objectives. The sixty test items thus selected for inclusion in the final study were placed under the related objectives. This procedure appears in Appendix C, wherein each objective is followed by the numbers of the related test items. In Appendix D is an arrangement of test items followed by related objective numbers.

Retained items for the final instrument were sorted according to levels of difficulty. The fifteen items for each grade level that were retained had the highest tetrachoric correlation. This was done in order for there to be a number of test items at each grade level that were within an appropriate range of difficulty. Hence, the first fifteen items
in the final test were at the first-grade level of ability. The test was then subjected to further detailed statistical analysis relating to validity and reliability.

Determining Reliability of the Instrument Developed for the Pilot Study

The social studies instrument developed for the pilot study was read aloud to the class by the classroom teacher; therefore, reading difficulties were eliminated. Items were repeated as often as seemed necessary, and no time limits were imposed. Since the scoring of test items was objective, being in multiple-choice form, concern with scorer reliability was no problem. In such a case, reliability could be appropriately investigated by correlating one half of the test with the other half and estimating the reliability of the total test by application of the Spearman-Brown prophecy formula. The estimated reliability of the total test using the Spearman-Brown formula was computed as being .71. The reliability of half the test was .59. This does not imply that a longer test is always more reliable than a short test, but using reasonable time limits to administer a test, so that boredom and fatigue have little effect, the addition of comparable items to a test may be expected to increase reliability. The use of split halves in the above computations was odd numbers versus even numbers.
Determining Validity of the Instrument Developed for the Pilot Study

Several procedures were taken to determine the validity of the pilot test. These included application of several additional tests to determine relative validity of the social studies instrument being developed for this study. The tests administered were the California Achievement Tests to the first four grades and the Iowa Test of Basic Skills, section W, to grades three and four. In the Iowa test section W is most closely related to social studies. Pearson product-moment correlations were computed between these two tests and the social studies instrument developed for the pilot study. All correlations were made by grade levels.

The results of the comparisons of scores made on the social studies test developed for the pilot study with those made on the California Achievement Test are presented in Table V. From Table V can be observed a progressive increase in means and standard deviations by grade levels on the social studies instrument developed for the pilot study. As children advance in grade levels a difference in achievement appears. Comparison of achievement scores made by children on the social studies instrument developed for the pilot study and the California Achievement Tests give high and significant correlations at all four grade levels.
### TABLE V

<table>
<thead>
<tr>
<th>Grade</th>
<th>Social Studies</th>
<th>California Achievement Tests</th>
<th>r</th>
<th>p*</th>
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<tr>
<td></td>
<td>Mean</td>
<td>S. D.</td>
<td>Mean</td>
<td>S. D.</td>
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<td>RAW Scores</td>
<td>Grade Placement</td>
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<td></td>
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<tr>
<td>1</td>
<td>52.60</td>
<td>11.74</td>
<td>2.46</td>
<td>.63</td>
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<td>2</td>
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<td>3</td>
<td>85.91</td>
<td>13.32</td>
<td>4.07</td>
<td>.75</td>
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<tr>
<td>4</td>
<td>101.08</td>
<td>13.67</td>
<td>4.74</td>
<td>.90</td>
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</tbody>
</table>

*S. D. = standard deviation; r = coefficient; p = level of significance; symbols will be repeated.

The results of the comparisons of scores made on the social studies instrument developed for the pilot study with those made on the Iowa Test of Basic Skills, section W, by third- and fourth-grade students are presented in Table VI.

At the third- and fourth-grade levels, comparisons between the social studies instrument developed for the pilot study and section W of the Iowa test, as shown in Table VI, indicate that
the pilot study measures achievement progressively from grade to grade and is closely associated with those academic skills measured by the Iowa test. This has particular meaning in terms of validity of the instrument developed for the pilot study because section W of the Iowa test is closely related to social studies.

**TABLE VI**

MEANS, STANDARD DEVIATIONS, AND CORRELATION COEFFICIENTS FOR THE SOCIAL STUDIES PILOT INSTRUMENT VERSUS THE IOWA TEST OF BASIC SKILLS, SECTION W

<table>
<thead>
<tr>
<th>Grade</th>
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<th>Iowa Test of Basic Skills</th>
<th>r</th>
<th>p</th>
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<tbody>
<tr>
<td></td>
<td>Raw Scores</td>
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<td></td>
<td></td>
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<tr>
<td></td>
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<td>S. D.</td>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td>3</td>
<td>86.91</td>
<td>13.32</td>
<td>3.91</td>
<td>.78</td>
</tr>
<tr>
<td>4</td>
<td>101.09</td>
<td>13.67</td>
<td>4.59</td>
<td>.83</td>
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</tbody>
</table>

Since achievement is also directly related to intelligence, a comparison was made between the instrument developed for the pilot study and the California Test of Mental Maturity. This information is given in Table VII.
TABLE VII
MEANS, STANDARD DEVIATIONS, AND CORRELATION COEFFICIENTS
FOR THE SOCIAL STUDIES PILOT INSTRUMENT VERSUS
THE CALIFORNIA TEST OF MENTAL MATURETY

<table>
<thead>
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<th>Grade</th>
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<th>California Test of Mental Maturity</th>
<th>r</th>
<th>p</th>
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<tr>
<td></td>
<td>Raw Scores</td>
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<td>S. D.</td>
<td>Mean</td>
</tr>
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<td>Mean</td>
<td>S. D.</td>
<td></td>
<td>Mean</td>
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<td>101.08</td>
<td>13.67</td>
<td>99.98</td>
<td>12.82</td>
</tr>
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</table>

From Table VII it can be determined that all correlations are high and significant. It is a well-known fact that children with high mental ability usually make high grades or scores in achievement. This was the case of the instrument developed for the pilot study when compared with scores made on the California Test of Mental Maturity.

Correlations were determined between the scores made by children at each grade level with those scores made by children.
at each of the other grade levels on the social studies instrument developed for the pilot study. This is reported in Table VIII.

TABLE VIII

THE PEARSON PRODUCT MOMENT CORRELATIONS BY GRADE LEVEL FOR THE SOCIAL STUDIES INSTRUMENT DEVELOPED FOR THE PILOT STUDY

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
<td>p</td>
<td>r</td>
</tr>
<tr>
<td>1</td>
<td>.61</td>
<td>.001</td>
<td>.71</td>
</tr>
<tr>
<td>2</td>
<td>.48</td>
<td>.001</td>
<td>.50</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>.34</td>
</tr>
</tbody>
</table>

The Pearson product-moment formula for coefficients of correlation was determined for each grade level compared with every other grade level. The purpose of this was to compare performance on the social studies instrument developed for the pilot study between grade levels. One interpretation of the content of Table VIII is that there is a common element of social studies achievement at all grade levels since all correlations are positive, but the children were performing significantly differently at the various grade levels. The simple t test was applied to
determine the significance of the difference between the means of each group compared with each other grade level. In terms of validity this is important because it shows that measurement of social studies achievement varies from grade to grade.

The ability of the social studies instrument developed for the pilot study to discriminate between the upper one half of students, in terms of mental ability, and the lower one half of students determined by mental ability within each grade level was computed in the following manner:

A simple correlation was computed between the top and bottom students at each grade level. The resulting coefficients of correlation were: grade 1, .59; grade 2, .46; grade 3, .36; and grade 4, .16. From these four correlations it can be determined that as students progress up through the grades the difference in achievement between top and bottom groups becomes greater, and, therefore, correlations should become lower. Such was the case of the social studies instrument developed for the pilot study. From the standpoint of validity this is important because it is a well-known fact that as students progress through the elementary grades achievement becomes more diversified and wider variations occur.
Summary

In this chapter comparisons were made between scores made on the social studies evaluative instrument developed for the pilot study and the California Achievement Tests and the California Test of Mental Maturity for the first four grades, and with the Iowa Test of Basic Skills, section W, for the third and fourth grades.

Comparisons were also made between scores made on the social studies instrument by children at each grade level and those made by children at each of the other grade levels. Comparisons were made between the top 50 per cent of students in mental ability with the bottom half of students in mental ability at each given grade level both by use of the Pearson product-moment correlation and use of the tetrachoric correlation on each test item.

The findings of these comparisons were that high and significant relations exist between all tests used and the social studies instrument developed for the pilot study. As a result of these studies the social studies instrument was reduced to sixty test items, given in Appendix D. When relationships as those reported above exist, some kind of reliability and validity can be inferred.
CHAPTER V

RELIABILITY AND VALIDITY OF THE FINAL TEST

In order to determine the validity and reliability of the social studies evaluative instrument developed for the final study, several additional investigative procedures were adopted. These included (1) procedures used in the final study, (2) reliability of the final test, (3) determining validity, and (4) item analysis.

Procedures Used in the Final Study

The evaluative instrument consisting of sixty items developed for the final study was administered to four classes from each of the first four grades in four representative schools. Each school was selected from a total of twenty-two schools in a different locale but within the same metropolitan area. Selection was made by the elementary education consultant of the area, with preference being given to the most representative school, based upon average performance of the entire scholastic enrollment on achievement tests. A total of 472 children from sixteen different classrooms in four different schools were involved in the final study in the spring of 1963. All students
in the first four grades were administered the California Test of Mental Maturity and the California Achievement Test. Students in grades three and four also received the Iowa Test of Basic Skills, but only section W of the Iowa test was used because it is most related to social studies. After tests were scored, all students were ranked by intelligence quotient scores and all subsequent test results were recorded in this parallel form.

Reliability of the Final Test

The analysis of scores made by children on the social studies instrument developed for the final study is presented in Table IX.

**TABLE IX**

**MEANS, STANDARD DEVIATIONS, AND STANDARD ERRORS OF MEASUREMENT FOR THE FINAL SOCIAL STUDIES INSTRUMENT**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Standard Error of Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>25.00</td>
<td>5.82</td>
<td>.57</td>
</tr>
<tr>
<td>2</td>
<td>29.57</td>
<td>6.66</td>
<td>.61</td>
</tr>
<tr>
<td>3</td>
<td>37.94</td>
<td>6.37</td>
<td>.58</td>
</tr>
<tr>
<td>4</td>
<td>45.60</td>
<td>7.16</td>
<td>.64</td>
</tr>
</tbody>
</table>

From Table IX can be interpreted a progressive advancement in social studies achievement as children advance from grade to
grade. The standard errors of measurement for the four grades indicate how closely each individual student's obtained score approximates his true score. In other words, the chances are two to one that the student's score did not differ from the obtained score by more than the standard error of measurement, or nineteen to one that the student's score did not vary more than twice the standard error of measurement. Thus, the standard error of measurement is a component of test reliability and is actually more helpful than the reliability coefficient when interpreting individual scores.

Reliability was also investigated by correlating one half of the test with the other half and estimating the reliability of the total test by application of the Spearman-Brown prophecy formula. The reliability of half of the test, using odds versus evens, was .79. Reliability of a test twice as long was estimated as being .91. The reliability is high and indicates that some assurance can be placed in the usefulness of the instrument in application to similar populations and under the same conditions.

Determining Validity of the Final Instrument

Several procedures were taken to determine the validity of the final social studies instrument being developed in this study. These procedures included comparisons of the final instrument with other tests. These included the California Test of Mental Maturity, the California Achievement Tests, and
the Iowa Test of Basic Skills, section W. The first two afore-
mentioned tests were given to all four grades, but the Iowa test
was administered to grades three and four, and only the section re-
lating to social studies was used in comparison with final social
studies test scores.

The results of the comparisons of scores made by children on
the social studies test developed for the final study with those
made by the same children on the California Achievement Test are
presented in Table X.

**TABLE X**

MEANS, STANDARD DEVIATIONS, AND CORRELATION COEFFICIENTS
FOR THE FINAL SOCIAL STUDIES TEST VERSUS THE
CALIFORNIA ACHIEVEMENT TESTS

<table>
<thead>
<tr>
<th>Grade</th>
<th>Social Studies</th>
<th>California Achievement Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Raw Scores</td>
<td>Grade Placement</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td>1</td>
<td>25.00</td>
<td>5.89</td>
</tr>
<tr>
<td>2</td>
<td>29.52</td>
<td>6.66</td>
</tr>
<tr>
<td>3</td>
<td>37.04</td>
<td>6.37</td>
</tr>
<tr>
<td>4</td>
<td>45.60</td>
<td>7.16</td>
</tr>
</tbody>
</table>

*S. D. = standard deviation; r = coefficient; p = level of
significance; symbols will be repeated.
From Table X can be observed a progressive increase in means and standard deviations by grade levels on the final social studies test and that as children progress in school by grades a difference in achievement occurs. This is vital to a valid instrument, since it is an established fact that children increase in achievement as they advance in school. Comparison of the social studies instrument developed for the final study and the California Achievement Tests give high and significant correlations at all four grade levels.

The results of the comparisons of scores made by children on the social studies test developed for the final study with those made on the Iowa Test of Basic Skills, section W, by third- and fourth-grade students are presented in Table XI.

**TABLE XI**

Means, Standard Deviations, and Correlation Coefficients For the Final Social Studies Test versus the Iowa Test of Basic Skills, Section W

<table>
<thead>
<tr>
<th>Grade</th>
<th>Social Studies</th>
<th>Iowa Test of Basic Skills, Section W</th>
<th>( r )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Raw Scores</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>S. D.</td>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td>3</td>
<td>37.04</td>
<td>6.37</td>
<td>3.66</td>
<td>.70</td>
</tr>
<tr>
<td>4</td>
<td>45.60</td>
<td>7.16</td>
<td>4.66</td>
<td>.76</td>
</tr>
</tbody>
</table>
From Table XI can be observed that the third- and fourth-grade students' performance on the social studies test developed for the final study is high when compared with the performance of the same students on the social studies related section of the Iowa test. It is apparent that these correlations are high and significant. This is most meaningful in terms of validity. The final social studies test results can be interpreted to mean that the social studies instrument measures achievement progressively from grade to grade and is closely associated with those academic skills measured by the Iowa test.

It is recognized that a strong positive relationship exists between scholastic achievement and intelligence. An achievement test which failed to indicate some positive correlation with intelligence tests would be of doubtful value. A comparison was made between the instrument developed for the final study and the California Test of Mental Maturity. This information is given in Table XII.

Upon observing Table XII, it can be seen that all correlations are high and significant at all grade levels. Children with high mental ability achieve more effectively in school, and this was the case with the instrument developed for the final study when compared with scores made on the California Test of Mental Maturity.
TABLE XII
MEANS, STANDARD DEVIATIONS, AND CORRELATION COEFFICIENTS
FOR THE FINAL SOCIAL STUDIES TEST VERSUS THE
CALIFORNIA TEST OF MENTAL MATURITY

<table>
<thead>
<tr>
<th>Grade</th>
<th>Social Studies</th>
<th>California Test of Mental Maturity</th>
<th>r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S. D.</td>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td>1</td>
<td>25.00</td>
<td>5.89</td>
<td>105.37</td>
<td>14.69</td>
</tr>
<tr>
<td>2</td>
<td>29.52</td>
<td>6.66</td>
<td>103.21</td>
<td>13.54</td>
</tr>
<tr>
<td>3</td>
<td>37.04</td>
<td>6.37</td>
<td>104.58</td>
<td>10.05</td>
</tr>
<tr>
<td>4</td>
<td>45.60</td>
<td>7.16</td>
<td>98.52</td>
<td>11.10</td>
</tr>
</tbody>
</table>

Correlations were also determined between the scores made by children at each grade level with those scores made by children at each of the other grade levels on the social studies instrument developed for the final study. This is presented in Table XIII.

In Table XIII the coefficient of correlation was determined for each grade level compared with every other grade level. Then the results were subjected to the t test to determine the level of significance. All correlations are positive, indicating that a common element of social studies achievement exists. There is a significant difference in achievement at each grade level, indicating that children are performing different at each grade level.
TABLE XIII

CORRELATIONS BETWEEN FINAL TEST SCORES MADE AT EACH GRADE LEVEL COMPARED WITH EACH OF THE OTHER GRADE LEVELS

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( r )</td>
<td>( p )</td>
<td>( r )</td>
</tr>
<tr>
<td>1</td>
<td>.59</td>
<td>.001</td>
<td>.59</td>
</tr>
<tr>
<td>2</td>
<td>.53</td>
<td>.001</td>
<td>.60</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

An analysis of the degree of discrimination between the upper one half of students in terms of mental ability and the lower one half of students in terms of mental ability as determined by scores made on the final social studies instrument developed in this study was computed in the following manner. A simple correlation was computed between the top and bottom groups of students at each grade level, using the Pearson product-moment formula. The results derived from this procedure were: grade 1, .35; grade 2, .39; grade 3, .34; and grade 4, .43. All correlations indicate there is difference between the performance of top groups of students versus bottom groups. The same procedure was applied to the top 25 per cent versus the bottom 25 per cent of students at each grade level. These
results were more significant, with one exception. Grade one indicated that top students and bottom students in performance are more alike. The correlation coefficient for grade one was .42.
For grade two the coefficient was .17; for grade three the coefficient was .017; and for grade four the coefficient was .078. With the exception of the first grade, these coefficients seem to indicate that as students progress in grade levels, the differences between top groups and bottom groups, in terms of mental ability and performance, widen significantly. Since all correlations are low and positive, the indication is that the top half of students are performing differently on the social studies test.

Since an achievement test to be valid must distinguish between top and bottom groups of students within grade levels, the foregoing correlations indicate that the test is functioning in a highly desirable manner. Low correlations are necessary in order for it to be ascertained that a wide difference exists in social studies achievement of high groups versus low groups.

Item Analysis

In order to determine the discrimination power of each of the final sixty test items, both phi coefficients and chi squares were computed for each test item at each grade level. Item counts were made of the responses of the top 27 per cent of students in terms of mental ability and the bottom 27 per cent
in mental ability within each grade level. Correct responses of these groups were then changed to percentages and then to phi coefficients by use of C. E. Jurgenson's (2, pp. 23-29) tables for phi coefficients.

The phi coefficient ranges from zero to one in size, but seldom reaches either extreme. A phi greater than .58 is questionable. A phi of one would represent the greatest relationship between the observed frequencies and independent variables. A phi of zero would indicate there is no difference between the variables (1, p. 314).

Statistical inference was then applied by deriving chi square from phi in order to determine the level of significance of each test item at each grade level. Chi square is related to phi by the formula: \[ x^2 = N \phi^2. \] Therefore, to obtain chi square, phi coefficients were squared and then multiplied by the total number of cases for each grade level (1, p. 313; 2, p. 19). Any chi square that is larger than 3.841 indicates there is a significant difference between the two groups being evaluated. The criteria for this study was the 5 per cent level of significance.

Phi coefficient is an index of contingency. By use of phi, weak items may be eliminated so that statistical balance may be achieved. Phi coefficients are indications of the power of each item to discriminate between students who score high and students who score low in terms of total test score. In order to test
the phi coefficient, a simple \( t \) test must be applied because this is not a Pearson product-moment \( r \) based upon continuous measurement. Therefore, to test the significance of phi, the chi square test must be applied. In the chi square test the null hypothesis can be conceived of in the following manner. Assumptions must be made that the two samples arose by random sampling from the same population. Then the question arises as to how such distributions as the ones obtained could depart as much as they do from chance distribution. The chi square numbers are total amounts of discrepancies between hypothesis and observation. Phi coefficients must be above .19 and chi squares must be above 3.841 to lead to the rejection of the hypothesis that the two distributions came from the same population with positive assurance. Phi coefficients, chi squares, and levels of significance for each item at each grade level on the final social studies test are reported in Appendix E. Like the \( t \) ratio the level of significance can be interpreted as being so significantly large that sampling alone could account for the results only once in one hundred or once in a thousand times, as the case may be.

From a survey of the data presented in Appendix E it was determined how the levels of probability were distributed. These results are tabulated in Table XIV.

From Table XIV it can be determined how effectively the test items are performing at various grade levels. At grade one,
**TABLE XIV**

**LEVELS OF PROBABILITY OF SIXTY FINAL TEST ITEMS**
**AT GRADE LEVELS ONE, TWO, THREE, FOUR**

<table>
<thead>
<tr>
<th>Level of Significance</th>
<th>Number of Test Items Grade 1</th>
<th>Number of Test Items Grade 2</th>
<th>Number of Test Items Grade 3</th>
<th>Number of Test Items Grade 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>.001</td>
<td>11</td>
<td>5</td>
<td>33</td>
<td>22</td>
</tr>
<tr>
<td>.01</td>
<td>6</td>
<td>15</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>.02</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>.05</td>
<td>8</td>
<td>7</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>.10</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>.11-.99</td>
<td>31</td>
<td>26</td>
<td>8</td>
<td>7</td>
</tr>
</tbody>
</table>

Twenty-seven items are significant beyond the 5 per cent level. At grade two, twenty-nine items are functioning adequately. At grade three, fifty-one items are significant beyond the 5 per cent level. At grade four, forty-nine items are within the level of significance. This does not mean that other items should be discarded. Many items are effective at one given grade level but too easy or too difficult for another grade. From Table XIV it can be observed that a sufficient number of test items are effective at each grade level.
Summary

In this chapter comparisons were made between scores made by 472 students on the social studies test developed for this study and the California Test of Mental Maturity, the California Achievement Tests, and the Iowa Test of Basic Skills. The first two tests were given to all students, but the Iowa test was given to grades three and four, and only section W was used.

Comparisons were also made between scores made on the social studies instrument developed for the final study by children at each grade level with those made by children at each of the other grade levels. Further comparisons were made between scores made on the social studies instrument developed in this study by the top 50 per cent of students in mental ability and the bottom 50 per cent of students in mental ability at the same given grade level. The same comparisons were made between top 25 per cent and bottom 25 per cent of students in each grade level.

Item analysis was made by use of percentages of correct responses to each item by students in each grade level. Phi coefficients were computed for each test item at each grade level to indicate the level of significance of each item, as well as the discrimination power of each item at each grade level.

A reliability study was made which indicated that the correlation is high and positive when compared by split halves.
The findings in all cases mentioned were high and significant, which means that some kind of reliability and validity can be inferred.
CHAPTER BIBLIOGRAPHY


CHAPTER VI

SUMMARY, CONCLUSIONS, RECOMMENDATIONS, AND
EDUCATIONAL IMPLICATIONS

The primary purpose of this study was to develop an instrument for the evaluation of social studies achievement among primary-grade children. To achieve this purpose involved several sub-problems. The major goals and objectives of elementary education were determined from courses of study, textbook content, studies of learned organizations, and other research. Basic measurable objectives were defined and sorted into broad categories. Numerous test items were formulated to measure achievement related to each specific objective in terms of concepts, understandings, generalizations, and skills. Analogous test items were prepared so that several test items would have common content meanings and would result in similar statistical characteristics. Curricular validity was determined from the above-mentioned sources.

Test items were evaluated by twenty primary grade teachers. After refinement the items were tried out on a group of 178 primary grade children. Additional refinement was necessary. From an original list of 349 test items the evaluative instrument was
reduced to 132 items developed for a pilot study. In the pilot study 212 children from the first four grades were administered the social studies instrument developed for the final study, the California Test of Mental Maturity, and the California Achievement Tests. The third- and fourth-grade students also received the Iowa Test of Basic Skills. From these tests came detailed statistical analysis relating to test reliability and validity. The evaluative instrument developed by these procedures was reduced to sixty items to be administered to 472 children from four separate but representative schools in the same manner as given above. All test results from the social studies instrument developed for the final study and the other three tests were subjected to appropriate statistical treatment.

Summation of Findings

The summary of the results obtained from these test administrations after statistical applications of appropriate formulas were:

1. There is a high and significant relationship between social studies achievement of primary grade children as measured by the instrument developed for this study and the California Test of Mental Maturity.

2. There are low but positive correlations between social studies achievement of high mental ability groups and students of low mental ability at each grade level.
3. There is a significant high and positive correlation between the social studies achievement of primary grade children as measured by the instrument developed in this study and total achievement of the same children on the California Achievement Test.

4. There is a significant high and positive correlation between the social studies achievement of third- and fourth-grade children as measured by the instrument developed in this study and achievement of the same children on section W of the Iowa Test of Basic Skills.

5. As measured by the instrument developed in the present research, there are wide differences in social studies achievement of children in the first four grades when each grade is compared with every other grade level. There are also significant differences between the social studies achievement of upper half and lower half of children in terms of mental ability within each grade level as measured by the instrument developed in this study.

6. There was a high positive correlation between the split halves of the instrument developed in this study.

7. There are items on the social studies test that cover all areas of major objectives of social studies achievement. Subject-matter content is covered by the final sixty items.

8. Item analysis consisted of the computations of percentages, phi coefficients, chi square, and levels of significance for each separate test item at each grade level. The few items
that are beyond the selected 5 per cent of confidence cannot be rejected with any degree of confidence because of the necessary degrees of difficulty mandatory in any test that is scaled for varied ranges of ability. A sufficient number of test items in terms of difficulty were provided at each grade level.

Conclusions

In the development of any instrument for the evaluation of social studies the prime concern is validity and reliability. Since the customary procedures for assuring curricular validity have been followed, since appropriate statistical procedures related to validity have been followed, and since acceptable procedures for determining reliability have been accomplished, a considerable amount of confidence can be placed in the validity and reliability of this instrument.

Since the instrument has been used in regular classrooms by classroom teachers with results which indicate an achievement pattern comparable to those on well established achievement tests, some of the usefulness of this instrument has been demonstrated.

The results of this study indicate that the measurement of social studies achievement within the primary grades is effective and feasible.

The results of this study indicate that a large metropolitan city can derive significant information regarding pupil performance and achievement in social studies from the application
of a social studies evaluative instrument in the primary grades. Growth and development of primary-grade children should be ascertained in all areas of the curriculum and most especially in the area of social studies.

Recommendations

On the basis of the findings of this study, the following recommendations are presented for consideration in further research:

1. A careful and scientific study of the evaluation of measurable social studies objectives within each primary grade should be made, using improved instruments and techniques for measuring each specific objective.

2. A word analysis and vocabulary scale should be made of all social studies words understood by primary-grade children.

3. A comparison should be made between social studies achievement of primary-grade children in schools that use social studies as the core of the curriculum and those schools that do not.

4. Social studies tests should be devised to measure those social studies concepts, understandings, generalizations, and skills that cannot be measured by the type of instrument developed in this study.
5. Studies about the variability of social studies information in the primary grades should be used as a basis for the development of future tests.

6. The numerous misconceptions of meanings of social studies words suggest a need for research into the reasons for misunderstandings.

7. There needs to be a study to determine age and grade norms for each grade level on the social studies achievement test developed in this study.

8. In order to make this study more effective, there needs to be developed a set of parallel forms.

9. Additional studies should be made to determine the relationships of social studies achievement and the other areas of the primary grade curriculum.

10. Techniques for the determining of instructional needs of primary grade children in the social studies program should be devised and should include provisions for continuous evaluation of total social studies achievement.

Educational Implications

The results of the use of a social studies evaluative instrument in the primary grades could be an effective technique to study the following:

a. individual pupil achievement in social studies.

b. group achievement in social studies.
c. individual strengths and weaknesses in social studies achievement.
d. strengths and weaknesses of social studies in the total school program.
e. various teaching methods used in social studies.
APPENDIX A

Curriculum Guides


Des Moines Public Schools, Social Studies Guides for Grades One Through Six, Des Moines, Iowa, Board of Education, 1958.

Elgin Public Schools, A Scope and Sequence Pattern for the Social Studies: Kindergarten through Grade 9, Curriculum Bulletin Number 3, Elgin, Illinois, Elgin Public Schools, 1960.

Fort Worth Public Schools, Social Science Studies, A Tentative Course of Study for Grades One, Curriculum Bulletin Number 301.1, Fort Worth, Texas, Board of Education, 1956.


Lubbock Public Schools, A Guide for Teaching the Social Studies, First Grade, Lubbock, Texas, Lubbock Public Schools, Department of Instruction, 1957.

A Guide for Teaching the Social Studies, Second Grade, Lubbock, Texas, Lubbock Public Schools, Department of Instruction, 1957.

A Guide for Teaching the Social Studies, Third Grade, Lubbock, Texas, Lubbock Public Schools, Department of Instruction, 1957.

Oakland, California, Social Studies Curriculum Guide for Grades One, Two, Oakland, California, Oakland Public Schools, 1955.

social studies curriculum guide for grades three, four, Oakland, California, Oakland Public Schools, 1955.

Port Arthur Public Schools, Living and Learning in First Grade, Port Arthur, Texas, Port Arthur Board of Education, 1959.


Tyler Public Schools, Tentative Resource Guide in Social Studies, Compiled by the Social Studies Committee, Tyler, Texas, Tyler Public Schools, 1956.
APPENDIX B

Selected Textbooks—Grade One


*New Social Studies Textbooks, Subject to Adoption*


*Selected Texas State Adopted Textbooks*  
Grade Two


Kottmeyer, William and Kay Ware, Basic Spelling Goals 2, St. Louis, Webster Publishing Company, 1960.


New Social Studies Textbooks
Subject to Adoption


Selected Texas State Adopted Textbooks
Grade Three


Sheldon, William D., Queenie B. Mills, Mary Austin, and Robert McCracken, Magic Windows, New York, Allyn and Bacon, 1957.


New Social Studies Textbooks Subject to Adoption


Fraser, Dorothy and H. E. Hoy, Our Community, New York, American Book Company, 1962.

APPENDIX C

Objectives of Primary Education

The objectives of primary education are followed by the number or numbers of specifically related test items. These test items are to be found in the following Appendix.

I. African Heritage, Democratic Processes, and Civic Responsibility

1. The child should realize that privileges and freedoms involve responsibilities. Related test items: 3, 33, 34.

2. The child should understand democratic procedure, including rules, laws, and regulations that exist so that lives may be safer and happier. Related test items: 3, 6, 20, 32, 40.

3. The child should know about the Constitution of the United States, the framework of democratic government, and the traditions that have united to make up the American way of life. Related test items: 6, 32, 41, 57.

4. The child should know that the conscious and expressed bias in America is for democracy and belief in a Supreme Being. Related test items: 32, 33, 34, 41.

5. The child should be developing skill and competence in recognition and expression of values and should know the basic rules in concepts for fair play, ownership of property, theft, trespassing, and the responsibility of the finder of lost articles. Related test items: 3, 11, 20, 26.

6. The child should respect the rights, privileges, and individuality of others. Related test items: 10, 17, 18, 34.

7. The child should know something about the culture and life of the American Indian and the Eskimo. Related test items: 1, 13, 27.
8. The child should show interest in colonial people and how they lived and the ways of living in early days in his country and other lands, and should be able to tell short stories about historical happenings. Related test items: 13, 21, 27, 41, 43, 45.

9. The child should show awareness that some organizations and agencies are granted authority to help protect the welfare and safety of the community, state, and nation. Related test item: 20.

10. The child should understand the general process of electing officers within his group and should know the rules of team games in which he participates and be able to help in the formulation of rules for group behavior governing the rights, properties, and personalities of his group. Related test items: 11, 25, 33.

II. Human Relations: Appreciation of and Cooperation with Other Peoples and Nations

11. The child should be cooperating with others to improve life in his home, school, and community, and show awareness of responsibility to the group by his cooperation, attentiveness, and courtesy. Related test items: 3, 10, 11, 17, 18, 25, 33.

12. The child should be developing a sense of fair play, ability to distinguish between truth and dishonesty on an elementary level, and should show respect for rules, regulations, and authority. Related test items: 3, 17, 18, 20, 35.

13. The child should know that every race and religion is entitled to respect and that social tolerance requires the ability to accept difference in speech, manners, and grooming. Related test items: 10, 19.

14. The child should know about the more familiar occupations of many persons in his community. Related test items: 2, 9, 37.

15. The child should be able to organize or classify the occupational activities of various people under major headings of work. Related test items: 2, 9, 37, 40.
16. The child should be able to tell how people in one occupation are dependent upon many others and show awareness of the interdependence of all people. Related test items: 9, 11, 25.

17. The child should understand the roles of teachers, principals, school adults, members of the family, public servants in the community, schools, and how these affect his life and the lives of others. Related test items: 9, 37.

18. The child should know something about important people, things, and events in his community, city, state, country, and other countries. Related test items: 28, 29, 40, 45, 57.

III. Our Natural Environment

19. The child should understand the relationship between seasonal changes and the way people work, live, dress, and eat. Related test items: 1, 13, 15, 27, 35.

20. The child should begin to understand how people have become adapted to their environment by contrasting the various modes of living with present ways of living. Related test items: 1, 15.

21. The child should have some rudimentary knowledge of the basic processes of nature and how they influence man's life. Related test items: 1, 13, 15, 22, 27, 30, 55.

22. The child should know about common pets, farm animals, local plants, flowers, and crops and be aware of the dangers of strange cats, dogs, and animals at the zoo. Related test items: 4, 8, 22, 36.

23. The child should know that plants and animals provide food for man and should be able to relate how foods are kept safe and pure. Related test items: 4, 8, 30, 42, 58.

24. The child should know about the foods of many common animals and the products that plants and animals provide man—food, shelter, and clothing. Related test items: 4, 8, 30, 36, 42, 58.
25. The child should be familiar with many of the common animal and insect pests and poisonous plants. Related test item: 5.

26. The child should know the use of trees for providing beauty, fruit, lumber, food, and shade. Related test items: 22, 42, 55.

27. The child should understand that plants and animals are interdependent and make adaptations to their environment. Related test items: 1, 4, 22, 30, 36, 53.

28. The child should be using many simple tools correctly, and should be able to show the difference between doing work with simple tools and with large machines. Related test items: 12, 23, 59.

29. The child should be learning about simple machines and the scientific backgrounds to transportation and communication of such machines. Related test items: 12, 23, 24, 37, 45, 56, 59.

30. The child should know the value in using fire, knives, and machinery. Related test items: 12, 56, 59.

31. The child should become increasingly curious, interested and inquisitive about the sky, the earth, weather, conservation, science collections, protection and care of birds and other animals, pictures of birds, plants, and animals from wide regions, and the natural world around him. Related test items: 7, 36, 39, 43, 45, 52, 53.

IV. Self Realization

32. The child should have a growing geographical vocabulary and simple knowledge of certain basic words. Related test items: 38, 45, 47, 48, 50, 59.

33. The child should be aware of the world as a globe. Related test items: 35, 46, 47, 48.

34. The child should be acquainted with simple natural geographical features, as mountains, islands, lakes, rivers, streams, oceans, and ponds, and more so if they are in his immediate environment. Related test items: 46, 47, 48, 50.
35. The child should be able to understand and relate simple maps of his neighborhood, city, and expanding community, and have some understanding of the main divisions and regions. Related test items: 14, 35, 46, 47, 48.

36. The child should have a beginning skill in locating places on maps and be able to measure accurately with rulers and simple instruments. Related test items: 46, 47, 48.

37. The child should have some knowledge of the relationship of the earth to the sun, moon, and stars. Related test items: 7, 14, 35, 39, 44.

38. The child should be able to identify and solve simple problems and should be able to make simple generalizations on the basis of observation and experimentation. Related test items: 2, 31, 44, 49, 56, 60.

39. The child should have simple skill in reporting his observations and conclusions about plants, animals, and simple physical science phenomena. Related test items: 4, 5, 7, 31, 35, 39, 51, 52, 60.

40. The child should be able to give simple directions clearly and work out some problems independently and should be able to differentiate between fact and fancy. Related test items: 44, 54.

41. The child should know brief stories about a few of the great men of science and something of the new developments in science and should show desire for information about construction, transportation, communication, astronomy, warfare, and industrial processes. Related test items: 7, 23, 28, 29, 43, 45, 59.

42. The child should be able to answer in simple terms such questions as: What makes rain fall? What happens to water when it freezes? What causes dew in the morning? What happens to water in a teapot when it evaporates? Related test items: 16, 31, 51, 60.

43. The child should be able to make hypotheses in a simple manner. Related test items: 21, 43, 49, 53.

44. The child should understand that numbers must apply to a quantity of something in order to have meaning. Related test items: 47, 54.
45. The child should be able to apply numbers to the days of the week, months of the year, a dozen eggs, pennies in a dime, nickel, quarter, or dollar, minutes in an hour, inches in a foot, feet in a yard, and pints in a quart, as these relate to his past experiences. Related test items: 47, 54.

46. The child should be acquiring the vocabulary to respond to simple questions about the environment. Related test items: 14, 21, 30, 38, 39.

47. The child should begin to understand some of his own strengths and weaknesses and what he does well and what he does not do well, and awareness that people approve of efforts that are directed toward making the world a better place in which to live. Related test items: 10, 17, 18, 20, 26.

48. The child should engage in activities that help him conserve human and natural resources and property and should know how and why to practice safe behavior in crossing streets and how to manage fire properly. Related test items: 11, 38.

49. The child should be showing a growing understanding of why children and adults behave as they do and should understand that for successful group living there must be cooperative group planning, consideration, and sharing of responsibilities. Related test items: 17, 19.

50. The child should show awareness and concern with maintaining his health and safety and the health and safety of the community, as well as being aware of the value of good food, pure air, proper exercise, clean hands, adequate sleep, clean teeth, and the value in simple preventive medication. The child should know how infections spread and that contents of medicine bottles and things that look edible may be poisonous. Related test items: 5, 11, 16, 52.
APPENDIX D

A Test for the Measurement of Social Studies Achievement in the Primary Grades

To the right of each test item appear the numbers of the related objectives. These objectives appear in the previous Appendix.

Name ___________________________________________ Grade ________________
Teacher ___________________________________________ School ________________
Date ______________________________________________

Dear Boys and Girls:

This is a Social Studies Test. Your teacher will read every statement out loud. Each statement is followed by four possible answers. You are to circle only the ONE answer you think is best or right.

Example: To mow a yard you should use:
A. a rake,
B. a hoe,
(C. a lawnmower.)
D. scissors.

Example: A person who takes care of books in a library is a:
A. secretary,
B. librarian,
C. custodian,
D. teacher.

1. People who live in igloos are called:
A. Indians,
B. Arabs,
C. Eskimos,
D. Chinese.

Related objectives:
7, 19, 20, 21, 27.
2. The work of an electrician is to:
   A. put in wires.
   B. paint walls.
   C. put in water pipes.
   D. hammer nails.

   Related objectives: 14, 15, 38.

3. When walking home from school, children should:
   A. be friendly to all people.
   B. pet stray animals.
   C. stay off people's yards.
   D. play in the street.

   Related objectives: 1, 2, 5, 11, 12.

4. One animal that has scales on its body is the:
   A. horse.
   B. fish.
   C. cow.
   D. turtle.

   Related objectives: 22, 23, 24, 27, 39.

5. Plants are most dangerous when they:
   A. have blooms.
   B. are poisonous.
   C. cause hayfever.
   D. have thorns.

   Related objectives: 25, 39, 50.

6. The Constitution of the United States is:
   A. a Bill of Rights.
   B. an amendment.
   C. a book.
   D. the law of our land.

   Related objectives: 2, 3.

7. Our sun is a:
   A. moon.
   B. star.
   C. satellite.
   D. planet.

   Related objectives: 31, 37, 39, 41.
8. Milk cows are usually kept at a:
   A. poultry farm.
   B. cattle farm.
   C. truck farm.
   D. dairy farm.

9. The most important work of a father in the home is to:
   A. make money.
   B. mow the yard.
   C. help the family.
   D. fix broken things.
   Related objectives: 14, 15, 16, 17.

10. Every race is entitled to respect because:
    A. they all live in the same country.
    B. they all go to church.
    C. they all go to school.
    D. they all have equal rights.
    Related objectives: 5, 11, 13, 17.

11. Safety in the community depends upon:
    A. the Police Department.
    B. children playing safely.
    C. parents being careful.
    D. everyone thinking and acting wisely.
    Related objectives: 5, 11, 16, 48, 50.

12. The most valuable use of big machines is for:
    A. construction work.
    B. making cars.
    C. digging ditches.
    D. saving time and money.
    Related objectives: 26, 29, 36.

13. Buffalo skins were most useful to the American Indian for:
    A. protection from the weather.
    B. making clothes.
    C. making tents.
    D. lining canoes.
    Related objectives: 7, 8, 19, 21.
14. Our earth moves around the:
   A. moon.
   B. stars.
   C. sun.
   D. planets.

   Related objectives: 35, 37, 46.

15. On a hot summer day, people should wear:
   A. woollen clothes.
   B. rain coats.
   C. cool clothes.
   D. warm clothes.

   Related objectives: 19, 20, 21.

16. Rooms should be ventilated because:
   A. we need the sunshine.
   B. we may catch hay fever.
   C. we don't want asthma.
   D. we need pure fresh air.

   Related objectives: 42, 50, 46.

17. During classroom discussions, each child should:
   A. try to talk the most.
   B. let the teacher do all the talking.
   C. not talk at all.
   D. take turns in talking.

   Related objectives: 6, 10, 11, 12, 47, 49.

18. All people in the neighborhood should:
   A. go to church.
   B. go to school.
   C. help one another.
   D. keep their yards clean.

   Related objectives: 6, 11, 12, 47.

19. Children should walk to school with a friend:
   A. whose father is rich.
   B. who goes to the same church.
   C. whom they like.
   D. who is smart.

   Related objectives: 13, 49.
20. People should obey laws because:
   A. policemen say to do so.
   B. laws are to protect people.
   C. laws help policemen.
   D. people don't want to be fined.

   Related objectives: 2, 5, 6, 9, 12, 47.

21. Pioneer people traded goods with each other because:
   A. they lived far apart.
   B. there was very little money.
   C. there were few roads.
   D. there were no stores.

   Related objectives: 9, 43, 46.

22. Hard rock maple trees are most used for:
   A. making perfume.
   B. making medicine.
   C. making syrup and sugar.
   D. making decorations.

   Related objectives: 21, 22, 26, 27.

23. A freight train that carries livestock is called:
   A. a cattle car.
   B. a flat car.
   C. a hopper.
   D. a truck.

   Related objectives: 28, 29.

24. Transportation is the way people:
   A. travel.
   B. walk.
   C. work and play.
   D. get along together.

   Related objectives: 29, 41.

25. Plans for a classroom project should be made by:
   A. the principal.
   B. the teacher.
   C. the leader.
   D. children and teacher together.

   Related objectives: 10, 11, 16.
26. When a child stutters, people should:
   A. ignore it.
   B. laugh at him.
   C. tell his mother.
   D. run away from him.

   Related objectives: 5, 47.

27. The Eskimo uses ice instead of wood or rocks to build an igloo because:
   A. ice will not melt in the cold Arctic.
   B. ice will keep out the North Wind.
   C. he has no better materials.
   D. ice will keep out the snow and rain.

   Related objectives: 7, 8, 19, 20.

28. Heating water to kill germs was discovered by:
   A. Benjamin Franklin.
   B. Francis Scott Key.
   C. Louis Pasteur.
   D. Johannes Salk.

   Related objectives: 18, 41.

29. A vaccine to help prevent polio was discovered by:
   A. Johannes Salk.
   B. John Glenn.
   C. Alexander Bell.
   D. Louis Pasteur.

   Related objectives: 18, 41.

30. Plants and animals are necessary for:
   A. food.
   B. shade.
   C. vegetables.
   D. leather.

   Related objectives: 21, 23, 24, 27, 46.

31. When a teaspoon of salt is stirred in a glass of water, the salt will:
   A. float on the water.
   B. go to the bottom.
   C. dissolve.
   D. turn grey.

   Related objectives: 39, 39, 42.
32. Government of the people, by the people, and for the people is called:
   A. Communism.
   B. Imperialism.
   C. Dictatorship.
   D. Democracy.
   Related objectives: 2, 3, 4.

33. Members of a committee work best when they:
   A. share books.
   B. do not talk.
   C. cooperate.
   D. talk loudly.
   Related objectives: 1, 4, 10, 11.

34. People have freedom when they:
   A. listen to others.
   B. play outdoors.
   C. accept responsibility.
   D. work hard.
   Related objectives: 1, 4, 6.

35. Proof that the earth is rotating on its axis can be shown by the fact that:
   A. there are air and soil on earth.
   B. there are trees and grass on earth.
   C. there are days and nights.
   D. there are warmth and heat.
   Related objectives: 12, 19, 33, 35, 37, 39.

36. One crop that grows on vines is:
   A. oats.
   B. berries.
   C. wheat.
   D. cotton.
   Related objectives: 22, 24, 27.

37. On commercial airlines, the person who takes care of passengers is called the:
   A. stewardess.
   B. conductor.
   C. pilot.
   D. waitress.
   Related objectives: 14, 15, 17, 29.
38. Conservation means to:
A. save.
B. spend.
C. use.
D. serve.

Related objectives: 31, 32, 46, 48.

39. A study of the stars is called:
A. geometry.
B. biology.
C. astronomy.
D. geology.

Related objectives: 31, 39, 37, 46.

40. The head of the state government is called the:
A. president.
B. mayor.
C. governor.
D. attorney-general.

Related objectives: 2, 3, 18.

41. The United States was started and founded by:
A. Republicans.
B. Indians.
C. people of religious faith.
D. Democrats.

Related objectives: 3, 4, 8.

42. People should eat fresh fruits to help prevent:
A. asthma.
B. hay fever.
C. colds.
D. allergies.


43. The Pony Express lasted only a short time because:
A. Indians killed all the riders.
B. the telegraph was faster.
C. there was not enough water.
D. the wilderness was so rough.

Related objectives: 8, 31, 41, 43.
44. The sun rises or comes up in the:
   A. North.
   B. South.
   C. East.
   D. West.

45. The inventor of the first telegraph was:
   A. Samuel Morse.
   B. Benjamin Franklin.
   C. Alexander Bell.
   D. Abraham Lincoln.

Use the map below to answer the next four questions:

LEGEND:

- River
- Mountain
- Railroad
- Scale of miles
- City
- Capital
46. The city at the mouth of the river is:
A. Rio.
B. Bank.
C. Beal.
D. Mart.
Related objectives: 32, 22, 34, 35, 36.

47. To travel from Low to Beal by airplane would be about:
A. 20 miles.
B. 200 miles.
C. 55 miles.
D. 500 miles.
Related objectives: 32, 33, 34, 35, 36, 44, 45.

48. The mountains are to the:
A. South-west.
B. South-east.
C. North-west.
D. North-east.
Related objectives: 32, 33, 34, 35, 36.

49. Coffee would probably grow best near:
A. Bank.
B. Beal.
C. Star.
D. Worth.
Related objectives: 38, 43.

50. A small piece of land completely surrounded by water is called:
A. a lake.
B. an island.
C. a peninsula.
D. an isthmus.
Related objectives: 32, 34.

51. Rain falls because:
A. the wind blows.
B. water gets cold.
C. air gets hot.
D. temperature in clouds change.
Related objectives: 39, 42.
52. Frost forms because:
   A. water evaporates.
   B. moisture condenses.
   C. the temperature is below normal.
   D. cold air freezes moisture.

   Related objectives: 31, 39, 50.

53. Animals help conserve forests by:
   A. eating nuts.
   B. scattering seeds.
   C. building nests.
   D. removing soil.

   Related objectives: 24, 31, 27, 43.

54. In a year there are:
   A. 52 weeks.
   B. 12 months.
   C. 366 days.
   D. 1444 hours.

   Related objectives: 43, 44, 45.

55. Acorns come from:
   A. pecan trees.
   B. oak trees.
   C. elm trees.
   D. maple trees.


56. A freight train that carries coal is called a:
   A. stock car.
   B. a flat car.
   C. a hopper.
   D. a truck.

   Related objectives: 29, 30, 38.

57. Independence Day for the United States is:
   A. Christmas.
   B. July 4.
   C. October 12.
   D. November 11.

   Related objectives: 3, 18.
58. Venison comes from:
   A. cows.
   B. deer.
   C. goats.
   D. horses.

   Related objectives: 28, 29, 30, 32, 41.

59. The most useful tool to the wheat grower is the:
   A. thresher.
   B. combine.
   C. rake.
   D. hoe.

   Related objectives: 28, 29, 30, 32, 41.

60. Water gets on the outside of a glass of water by:
   A. seeping through the glass.
   B. evaporation.
   C. condensation of moisture in the air.
   D. oxidation in the glass.

   Related objectives: 38, 39, 42.
### APPENDIX E

**PHI COEFFICIENTS, CHI SQUARES, AND LEVELS OF SIGNIFICANCE FOR THE FINAL SOCIAL STUDIES TEST**

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