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ABSTRACT

Reported are the highlights of a national survey of approximately 10,000 teachers, principals, superintendents, and state and local district supervisors in public, Catholic, and private schools throughout the country. The report includes a brief overview of the sample design, instrument development, data collection, file preparation, and analysis procedures used in the survey as well as selected results of the study. Topics covered in the highlights report include attendance at NSF-sponsored institutes, conferences, and workshops; use of federally-funded curriculum materials; superintendents' opinions about federal support for curriculum development; teachers' needs for assistance; instructional materials and techniques; facilities, equipment, and supplies; state and local district supervision; and factors which affect instruction in science, mathematics, and social studies education. Eleven figures graphically illustrate the results of data collected by topic. (Author/MA)

CENTER FOR EDUCATIONAL RESEARCH AND EVALUATION

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March 1978

HIGHLIGHTS REPORT

1977 NATIONAL SURVEY OF SCIENCE, MATHEMATICS, AND SOCIAL STUDIES EDUCATION

by

Iris R. Weiss

Prepared for the
National Science Foundation

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PART I: INTRODUCTION

The 1977 National Survey of Science, Mathematics, and Social Studies Education was conducted by the Research Triangle Institute (RTI) under contract to the National Science Foundation (NSF). A national sample of teachers, principals, superintendents and local district supervisors received survey questionnaires, as did all state supervisors of science, mathematics, and social studies in each of the 50 states and the District of Columbia.

The sample design, instrument development, data collection, file preparation, and analysis procedures are described briefly in the remainder of Part I; highlights of the survey results are presented in Part II.

A. Sample Design

This survey utilized a national probability sample of districts, schools, and teachers. The sample was designed so that every superintendent and principal, and every teacher and supervisor of science, mathematics, and social studies in grades K-12 in the United States had a chance of being selected. All public, Catholic, and private schools in the country were included in the target population. This design ensured that national estimates of curriculum usage and classroom practices could be made from the sample data.

The samples were selected using a multistage stratified cluster design. First, approximately 400 public school districts were selected from 102 different geographic areas across the country. Next, schools within these districts were selected to provide a total of approximately 400 schools at each of four grade levels: K-3, 4-6, 7-9, and 10-12.[1] Finally, teachers within each sample school were selected from a list provided by the principal. Three teachers were selected from each K-3 and 4-6 sample school--one to answer questions about science

[1] A school was eligible for selection if it contained at least one of the grades in the specified grade range. Thus, for example, a K-6 school could have been selected either for the K-3 sample, the 4-6 sample, or both.

instruction, one about mathematics instruction, and one about social studies instruction. Six teachers--two in each subject--were selected from each 7-9 and 10-12 sample school.

B. Instrument Development

The National Science Foundation had defined the areas of interest for this survey to include course offerings, curriculum usage, and classroom practices in science, mathematics, and social studies. Specifically, NSF posed the following questions:

1. What science courses are currently offered in schools?[1]
2. What local and state guidelines exist for the specification of minimal science experiences for students?
3. What texts, laboratory manuals, curriculum kits, modules, etc., are being used in science classrooms?
4. What share of the market is held by specific textbooks at the various grade levels and subject areas?
5. What regional patterns of curriculum usage are evident? What patterns exist with respect to urban, suburban, rural, and other geographic variables?
6. What "hands-on" materials, such as laboratory or activity centered materials, are being used? What is the extent and frequency of their use by grade level and subject matter?
7. What audio-visual materials (films, filmstrips/loops, models) are used? What is the extent, frequency and nature of their use by grade level and subject matter?
8. By grade level, how much time (in comparison with other subjects) is spent on teaching science?
9. What is the role of the science teacher in working with students? How has this role changed in the past 15 years? What commonalities exist in the teaching styles/strategies/practices of science teachers throughout the United States?
10. What are the roles of science supervisory specialists at the local district and state levels? How are they selected? What are their qualifications?

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[1] The National Science Foundation defines science to include the natural sciences, social sciences, and mathematics.

11. How have science teachers throughout the United States been influenced in their use of materials by Federally-supported in-service training efforts in science?

An initial review of the research literature was conducted to locate previous studies in these areas and to identify important variables. A preliminary set of research questions and data sources was developed, submitted to NSF, and revised based on NSF feedback. Preliminary drafts of questionnaires were prepared using items which could be used to answer the research questions. Most of the items were developed specifically for this study, but some were adapted from items appearing in earlier studies.

The preliminary drafts of the questionnaires were reviewed by NSF and by 18 consultants with expertise in science, mathematics, and social studies education. They were also reviewed by representatives of a number of professional organizations including the following: the American Association for the Advancement of Science; the American Psychological Association; the Social Studies Education Consortium; the Educational Products Information Exchange; and the national associations of both state supervisors and local district supervisors of science, mathematics and social studies education. The questionnaires were revised based on feedback from the various reviewers; they were then approved by the Committee on Evaluation and Information Systems (CEIS) of the Council of Chief State School Officers and by the Office of Management and Budget (OMB).

The final versions of the questionnaires included the following topics:

State Supervisor: time spent on various supervision/coordination activities; sources of information; attendance at NSF-sponsored workshops; dissemination of federally-funded curriculum materials; requirements for high school graduation; and problems affecting instruction in their states.

District Curriculum: job responsibilities; professional memberships and activities; sources of information; district guidelines; use of standardized tests; textbook selection; use of federally-funded curriculum materials; and problems affecting instruction in their district.

Superintendent: background information such as district enrollment, type of community, per pupil expenditure, funding sources, number of teachers, and number of district supervisors; and opinions about federal support for curriculum development.

Principal: school enrollment; type of community; principals' qualifications for supervising science, mathematics and social studies instruction; sources of information; attendance at NSF-sponsored activities; school facilities, equipment, and supplies; textbook selection; problems affecting instruction in their school; use of federally-funded curriculum materials; and course offerings and enrollments in science, mathematics, and social studies.

Teacher: number of years teaching; sources of information; needs for assistance; time spent in instruction; teaching techniques; use of audiovisual materials; use of federally-funded curriculum materials; attendance at NSF-sponsored activities; and problems affecting instruction in their school.

C. Data Collection

The Chief State School Officers in the states with sample schools were asked for permission to contact sample districts in their states. District superintendents were subsequently contacted, and after they had granted permission, questionnaires were mailed to teachers, principals, and local district supervisors. In districts with no district supervisors in one or more subject areas, the superintendent was asked to designate a person to answer questions about district programs.

Follow-up activities used to increase the response rates included the use of Thank-You/Reminder postcards, a second questionnaire mail-out, mailgrams, and phone calls. The resulting response rates were 90 percent for state supervisors, 73 percent for superintendents, 72 percent for district supervisors, 84 percent for principals, and 76 percent for teachers.

D. File Preparation and Analysis

Completed questionnaires were edited manually and coded to resolve multiple responses (for example, when a teacher said 50-60 minutes were typically spent on mathematics instruction, the average value of 55 minutes was used) and to assign numeric values to open-ended responses (for example, each different textbook which was written in was assigned a code number). The data were then transformed to machine-readable form using programmable terminals, and a number of machine-editing checks were performed. Responses which were outside the acceptable range for each item were coded as "bad data" and excluded from the analyses (for example, if the number of minutes reportedly spent in a lesson exceeded the number of minutes in the school day).

The final step in file preparation was the addition of sampling weights to the file. The weight assigned to each sample member was the inverse of the probability of being selected into the sample; these weights were then adjusted for nonresponse of sample members. All results of the survey were calculated using weighted data.

It should be emphasized that these data, as in all surveys, are based on the self-report of respondents. For example, the average number of minutes spent on instruction in a subject was determined not by actual classroom observations but from teachers' estimates of time spent. In addition, the results of any sample survey, as opposed to a census of the entire population, are subject to sampling variability; it is expected that the results would not be exactly the same if a second random sample were drawn. For these reasons, the reader should exercise caution in interpreting these survey results, particularly in cases where the reported differences between groups are small.

PART II: RESULTS

A. Federally-Funded Curriculum Materials

1. Attendance at NSF-Sponsored Institutes, Conferences, and Workshops

Since 1955 the National Science Foundation has sponsored a variety of workshops, institutes, and conferences to increase the subject matter competency of science, mathematics, and social science

teachers and to help in the implementation of various curriculum materials. Since it is likely that many of the people who participated in these activities are no longer teaching, NSF records could not be used to determine the percentage of current teachers in these subject areas who have been reached by these activities. Therefore, sample members in this survey were asked if they had attended one or more NSF-sponsored activities and, if so, the particular types they had attended.

Figure 1 shows the percentages of current teachers who have attended one or more NSF-sponsored workshops, conferences, or institutes. Note that many more science and mathematics teachers than social studies teachers have participated in these activities. Also,

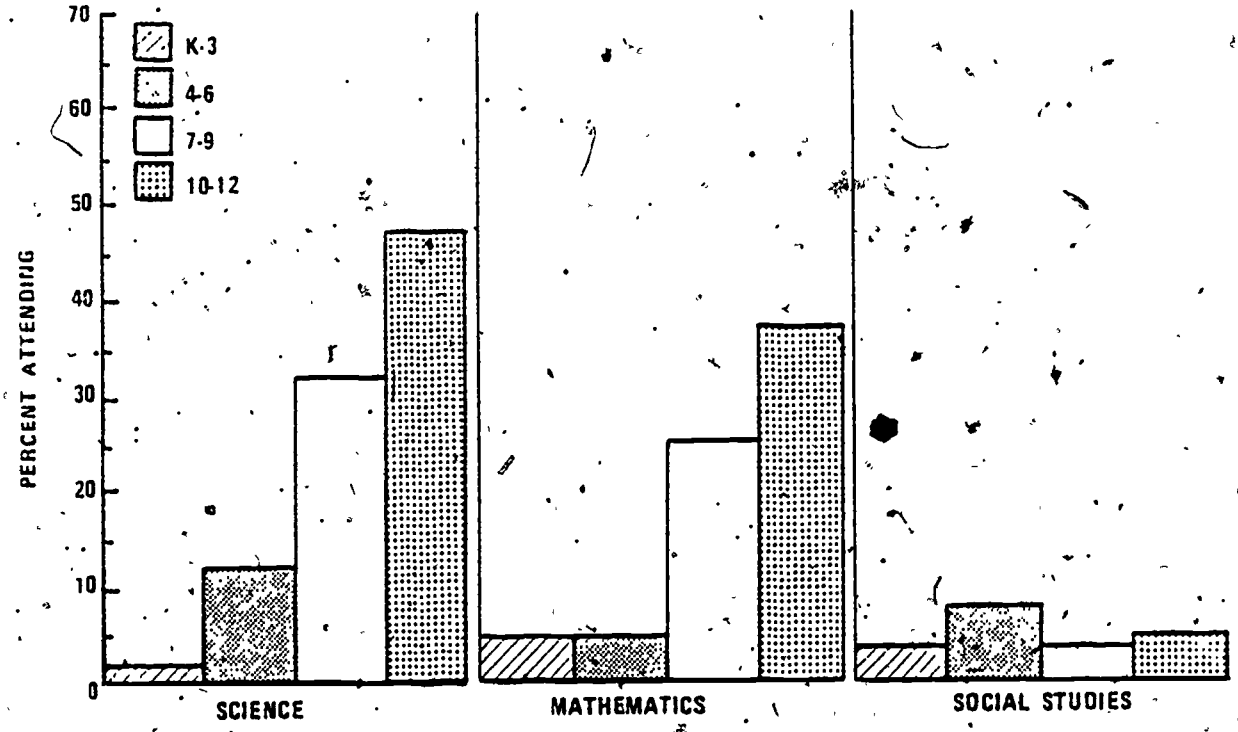

FIGURE 1: TEACHER ATTENDANCE AT NSF-SPONSORED INSTITUTES, WORKSHOPS, AND CONFERENCES

the level of participation generally increases with increasing grade level, with more than one-third of all high school mathematics teachers and almost half of all high school science teachers having participated in at least one such activity. NSF Summer Institutes and In-Service Institutes, both offered prior to 1974 only, served the largest numbers of teachers. The percentages attending NSF activities since 1974 are lower because relatively few teachers have had the opportunity to participate in these activities in the last several years.

2. Use of Federally-Funded Curriculum Materials

In addition to its teacher education activities, the National Science Foundation has supported the development of K-12 science, mathematics, and social science curricula for more than 20 years, beginning with the work of the Physical Science Study Committee (PSSC) in 1956. A major purpose of this national survey was to determine the current extent of use of the NSF-sponsored curriculum materials as well as use of other materials developed with federal funds. As can be seen in Figure 2, by far the most extensive usage of federally-funded curriculum materials is in science in grades 7-12; a total of 60 percent of the districts are using one or more of these materials, with 41 percent using more than one. At the K-6 level, approximately one-third of the districts are using one or more of the science curriculum materials. In social studies, the figures are 25 percent for grades K-6 and 24 percent for 7-12; and in mathematics fewer than 10 percent of the districts are using any of the federally funded curriculum materials.

The most commonly used of the federally-funded science and social studies materials are shown in Table 1. At both the K-6 and 7-12 grade levels, none of the federally-funded mathematics curriculum materials is used in as many as 5 percent of the districts. However, these figures are misleading. As was intended when these materials were developed, a number of the "innovations" have been incorporated into other commercially available textbooks which are being used in many districts.

Figure 3 shows the percent of teachers in each subject and grade range who are using at least one of the federally-funded curriculum materials. Note that the percent of teachers using these materials

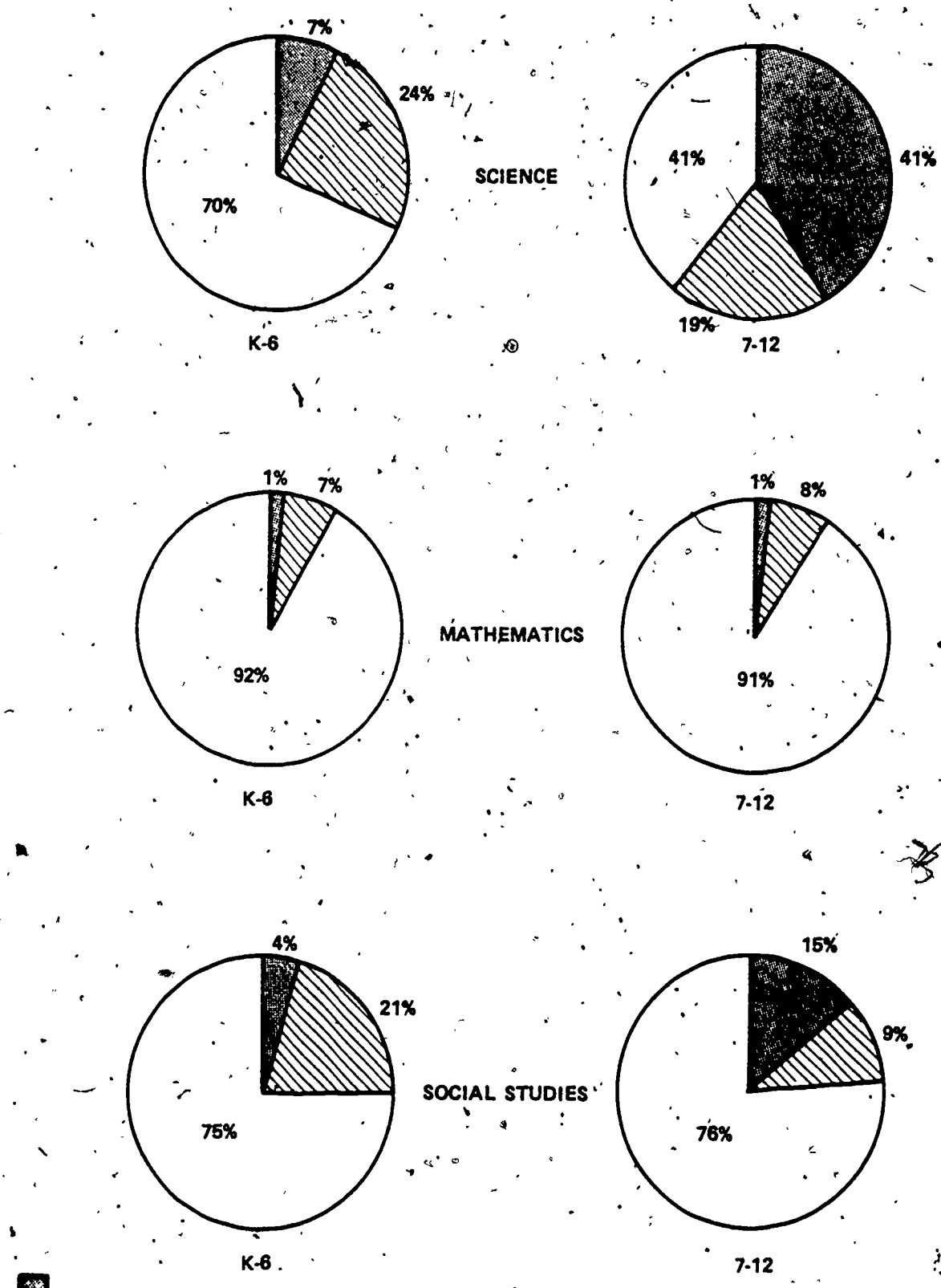

FIGURE 2: DISTRICT USE OF FEDERALLY FUNDED CURRICULUM MATERIALS IN 1976-77 SCHOOL YEAR

Table 1

FEDERALLY-DEVELOPED CURRICULUM MATERIALS BEING USED BY MORE THAN 5 PERCENT OF SCHOOL DISTRICTS

Curriculum Materials	Percent of Districts Using Materials
K-6 Science	
1. Elementary Science Study (ESS)	15
2. Science--A Process Approach (SAPA)	9
3. Science Curriculum Improvement Study (SCIS)	8
7-12 Science	
1. Introductory Physical Science (IPS)	25
2. Biological Science: An Ecological Approach (BSCS Green)	19
3. Biological Science: An Inquiry Into Life (BSCS Yellow)	16
4. Chemical Education Materials Study (CHEMStudy)	15
5. Probing the Natural World--Intermediate Science Curriculum Study (ISCS)	12
6. Project Physics Course (Harvard)	12
7. Physical Science Study Committee Physics (PSSC)	11
8. Investigating the Earth--Earth Science Curriculum Project (ESCP)	10
9. Biological Science: Molecules to Man (BSCS Blue)	8
10. Individualized Science Instructional System (ISIS)	7
11. Biological Science: Patterns and Processes	6
K-6 Social Studies	
1. Elementary Social Science Education Program Laboratory Units (SRA)	12
2. Our Working World	8
7-12 Social Studies	
1. American Political Behavior	12
2. Carnegie-Mellon Social Studies Curriculum Project (Holt Social Studies Curriculum)	10
3. Sociological Resources for the Social Studies (SRSS)	7

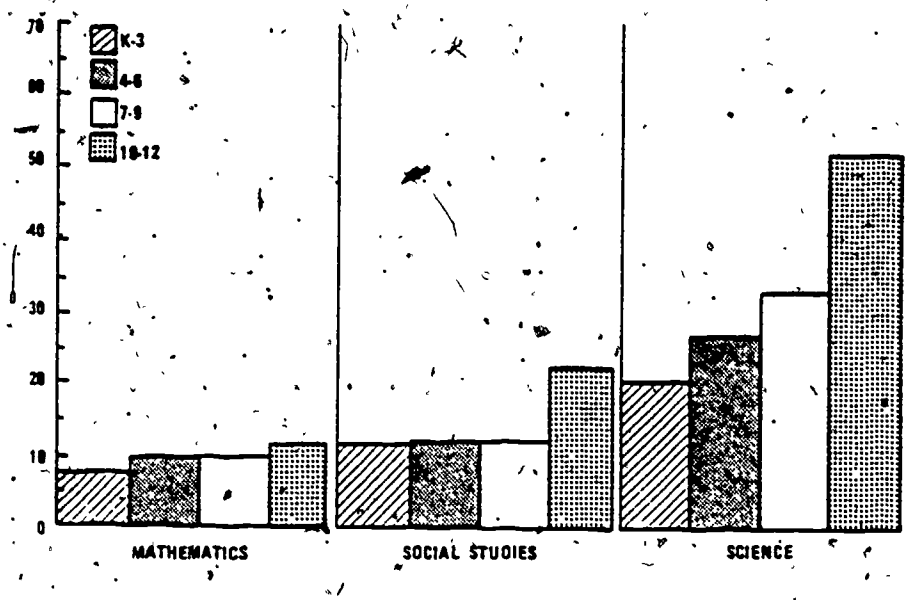

FIGURE 3: PERCENT OF TEACHERS USING ONE OR MORE OF THE FEDERALLY FUNDED CURRICULUM MATERIALS

tends to increase with increasing grade range. In fact, slightly more than half of all grade 10-12 science teachers were using one or more of the federally-funded science curriculum materials during the 1976-77 school year.

3. Superintendents' Opinions About Federal Support for Curriculum Development

Superintendents were asked to indicate if they agree or disagree with each of a number of statements about federal support for curriculum development. While 58 percent of superintendents agree that federal support for curriculum development and dissemination has improved the quality of curriculum alternatives available to schools, only 27 percent believe that these efforts have greatly improved the quality of classroom instruction. Most superintendents (66 percent) believe that continued federal support for curriculum development during the next 10 years is necessary, with 77 percent feeling that NSF should continue to help teachers learn to implement NSF-funded curricula, and 55 percent believing that the federal government should direct more attention toward disseminating the new curricula.

One frequently heard comment about federal support for curriculum development has been that it tends to create a nationally uniform curriculum; superintendents were about equally divided on this issue. Another area of frequent disagreement is whether or not federally-funded curriculum projects should deal with controversial topics; 34 percent of superintendents believe that they should not, while 60 percent believe they should, and 6 percent did not answer the question.

B. Science, Mathematics, and Social Studies Teachers

The average science, mathematics, and social studies teacher has been teaching for approximately 12 years; in general, differences among the subjects and grade ranges are quite small. Figure 4 shows the breakdown by sex of teachers in each of the four grade ranges. The results are consistent with the findings of a number of other studies: very few K-3 teachers are male, but most high school science, mathematics, and social studies teachers are male.

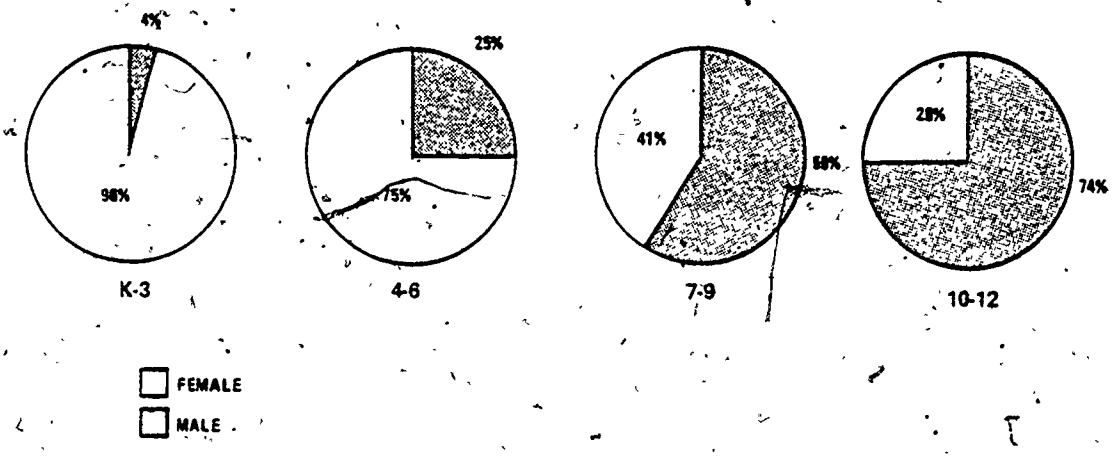

FIGURE 4: PERCENT OF MALE AND FEMALE SCIENCE, MATHEMATICS, AND SOCIAL STUDIES TEACHERS, BY GRADE RANGE

Most elementary school teachers teach in self-contained classrooms, that is, the teacher is responsible for instruction in all academic subjects. There is evidence, however, that the teachers do not feel equally prepared to teach all of these subjects. As shown in Figure 5, nearly two-thirds of all elementary teachers feel very well qualified to teach reading, while only 22 percent feel very well qualified to teach science. Similarly, at the other end of the scale, 16 percent of elementary teachers feel "not well qualified" to teach science, compared to 6 percent or fewer in each of the other three subject areas.

It is interesting to note that elementary teachers' perceptions about their qualifications for teaching the various subjects are consistent with the amount of time that is generally spent in instruction in these areas. Teachers in self-contained classes reported spending the most time on reading and the next largest amount of time on mathematics instruction. The emphasis on "the basics" apparently leaves very little time for instruction in science and social studies. As can be seen in Figure 6, students in grades K-3 spend an average of only about 20 minutes each day on science and on social studies. Note that the difference between the amount of time spent on reading and that spent on other subjects decreases from K-3 to 4-6.

More than half of all school districts in the country, especially small districts and those in rural areas, have no persons responsible for district-wide supervision or coordination. And, as shown in Figure 7, while approximately 75 percent of schools with grades 10-12 have science, mathematics, and social studies department chairmen, more than half of all elementary and junior high schools do not. Furthermore, while 90 percent or more of elementary school principals feel "adequately qualified" or "very well qualified" to supervise instruction in reading, mathematics, and social studies, almost 20 percent feel "not well qualified" for science supervision. Thus, the elementary school teacher who feels inadequately prepared to teach science (and 1 out of 6 feels this way) may not be able to get help from the principal, and is unlikely to have a science department chairman or a district science supervisor to turn to for help.

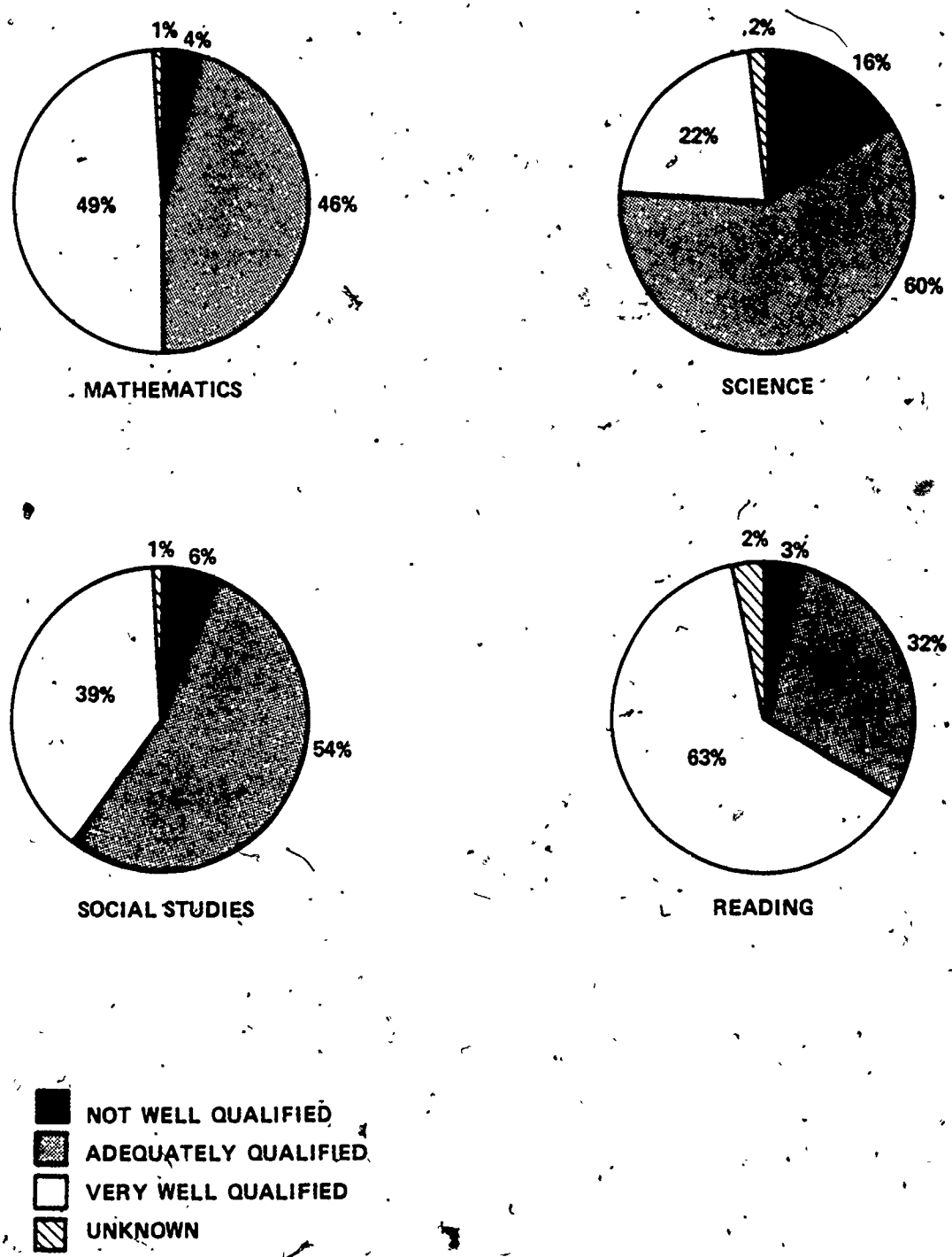

FIGURE 5: ELEMENTARY TEACHERS' PERCEPTIONS OF THEIR QUALIFICATIONS TO TEACH MATHEMATICS, SCIENCE, SOCIAL STUDIES, AND READING

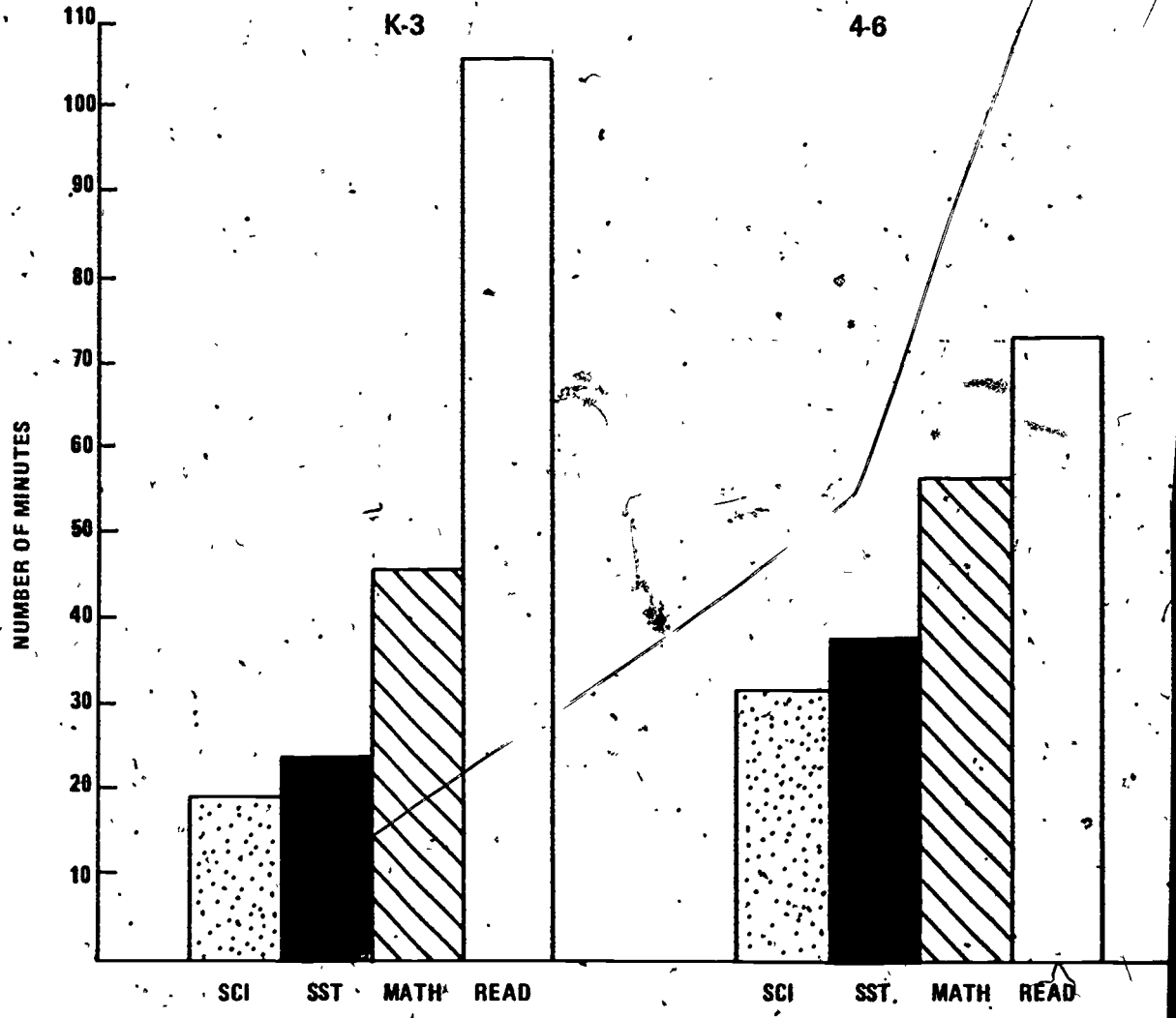

FIGURE 6: AVERAGE NUMBER OF MINUTES PER DAY SPENT TEACHING EACH SUBJECT IN SELF-CONTAINED CLASSES

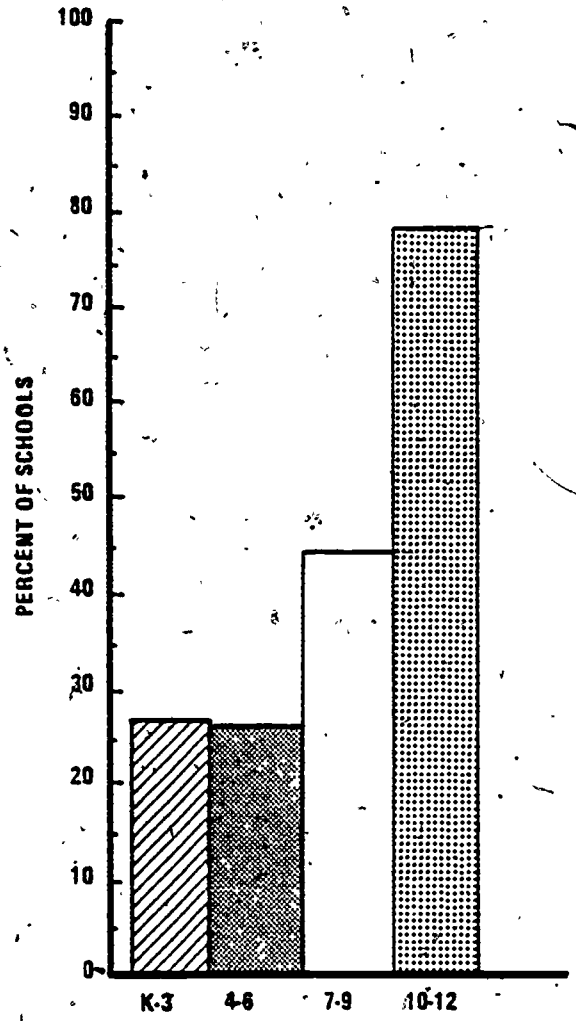

FIGURE 7: PERCENT OF SCHOOLS WITH DEPARTMENT CHAIRMEN BY GRADE RANGE

The perception that one is inadequately qualified for teaching certain subjects is not limited to elementary school teachers. Secondary teachers were asked to indicate if they are teaching any courses that they do not feel adequately qualified to teach, and if so, to specify the courses. Approximately 12 percent of the science, mathematics, and social studies teachers specified one or more courses. Interestingly, the vast majority of these teachers listed courses in their sample subject area; for example, most of the science teachers who indicated they are inadequately qualified to teach one or more courses were referring to courses within science. The problem of teaching "out of field" is apparently a greater problem within each major discipline than across disciplines.

Teachers were asked to indicate specific areas in which they would like assistance from a subject matter resource person but receive little or none, those areas in which they are already receiving adequate assistance, and those in which they usually do not need assistance from a subject matter resource person. More than 75 percent of all science, mathematics, and social studies teachers indicated they do not usually need assistance in lesson planning, actually teaching lessons, and maintaining discipline. Areas in which a sizable number of teachers would like additional assistance include obtaining information about instructional materials, learning new teaching methods, implementing the discovery/inquiry approach, and using manipulative or hands-on materials.

Teachers were also given a list of possible sources of information about new developments in education and were asked to rate the utility of each. The results showed that many science, mathematics, and social studies teachers rely on other teachers for information; approximately half of them rate this source "very useful" while most of the others consider teachers "somewhat useful." Other particularly valuable sources of information for teachers include: journals and other professional publications, especially for teachers in the higher grades; college courses; and for elementary teachers, local in-service programs. Principals, local subject specialists, federally sponsored workshops, meetings of professional organizations, and publishers and sales representatives are also considered useful sources of information by quite a few teachers, while the majority of teachers rated teacher union meetings and state department personnel as "not useful."

C. Instructional Materials and Techniques

The textbook continues to play a central role in science, mathematics, and social studies classes. With the exception of K-3 science and social studies, virtually all science, mathematics, and social studies classes use published textbooks or programs.[1] While most classes use a single textbook or program, approximately one-third use

[1] Approximately one-third of K-3 science and social studies classes use no published textbook or program.

multiple textbooks. In most districts, teacher committees and individual teachers are heavily involved in selecting the textbooks to be used. In many cases principals, superintendents and district-wide supervisors are also involved in these decisions. Very few districts involve students, parents or school board members to any great extent in the textbook selection process.

Lecture and discussion are the predominant techniques used in science, mathematics, and social studies classes. Discussion occurs "just about daily" in half or more of these classes. Approximately two-thirds of the classes in each subject have lecture once a week or more, with many of these having lectures "just about daily."

Science and social studies classes are generally more likely than mathematics classes to use alternative activities such as library work, student projects, field trips, and guest speakers. Similarly, films, filmstrips, film loops, slides, tapes, and records are more frequently used in science and social studies classes than in mathematics classes. On the other hand, individual assignments, chalkboard work, and tests occur more frequently in mathematics classes than in social studies or science classes. Televised instruction, programmed instruction, computer-assisted instruction, and contracts are rarely used in any of the three subjects. Finally, simulation activities (e.g., role-play, debates, panels) are common in social studies but rare in science and mathematics.

The use of "hands-on" or manipulative materials is most frequent in science classes, with 48 percent of the classes using them at least once a week compared to 38 percent of mathematics classes and 24 percent of social studies classes.[1] Figure 8 shows the frequency of use of manipulatives in science classes in the four grade ranges. Note that the overall use of manipulatives in science classes increases with increasing grade level. Meter sticks and rulers are frequently used at all grade levels, while living plants and animals are frequently used in the lower grades, and balances and scales are frequently used in the

[1] While manipulatives are used more frequently in science classes than in mathematics and social studies classes, science educators may be concerned that 9 percent of science classes never use manipulative materials and another 14 percent do so less than once a month.

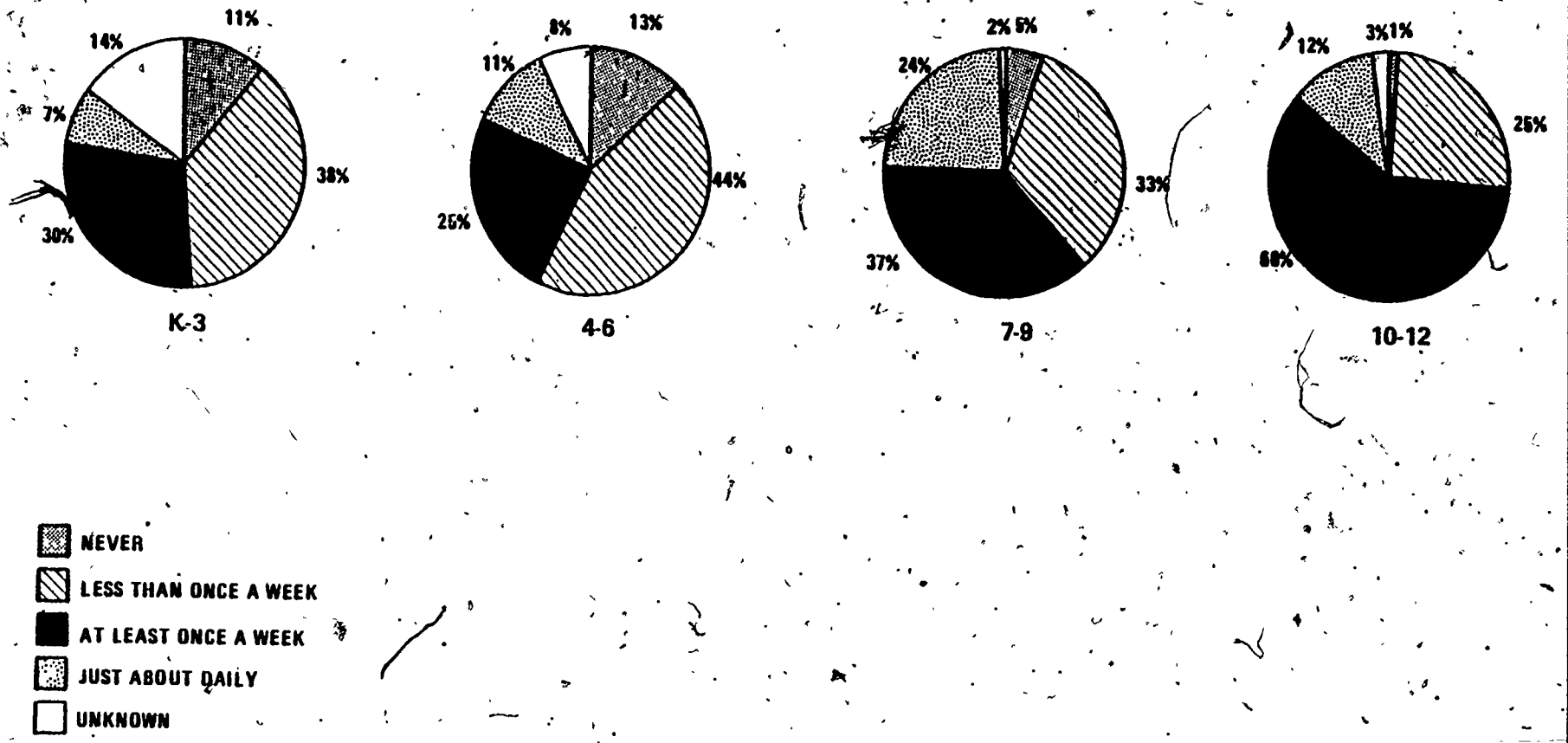

FIGURE 8: USE OF MANIPULATIVES IN SCIENCE CLASSES

higher grades. Interestingly, science teachers who have attended one or more NSF-sponsored activities are considerably more likely than other science teachers to use manipulative materials in their classes. (This is not the case for mathematics or social studies teachers.)

In mathematics, the use of manipulatives is more common in the lower grades. Games and puzzles, activity cards or kits, and numeration and place value manipulatives such as rods and blocks are frequently used in grades K-6. At all grade levels, non-metric measurement tools are more frequently used than metric measurement tools. In social studies, the use of manipulatives is again more common in the lower grades, with maps, charts, and globes being used quite frequently.

Science and mathematics teachers were asked about the use of the metric system in their classes. As shown in Figure 9, the use of metric concepts increases with increasing grade level in science classes; approximately 90 percent of the 7-9 and 10-12 science classes make use of the metric system. In mathematics, on the other hand, use is higher in the lower grades; by grades 10-12 only 56 percent of mathematics classes use metric concepts. In addition, mathematics classes are more likely to use the metric system only in a special unit, while science classes are more likely to introduce the concepts in a special unit and then use them throughout the course.

D. Facilities, Equipment and Supplies.

Principals were asked if each of a number of types of equipment is available in their schools. The results, shown in Figure 10, indicate that secondary schools are considerably more likely than elementary schools to have greenhouses, computers or computer terminals, hand-held calculators, and darkrooms.

Teachers were asked about the actual use of various types of equipment. The results showed that some types of equipment are available in many schools but are used in relatively few classes. For example, while more than three-fourths of elementary schools have microscopes, only 28 percent of the K-3 science classes and 59 percent of the 4-6 science classes ever make use of them. Similarly, while 36 percent of 10-12 schools have computers or computer terminals, only 9 percent of 10-12 science classes and 16 percent of 10-12 mathematics classes ever use them.

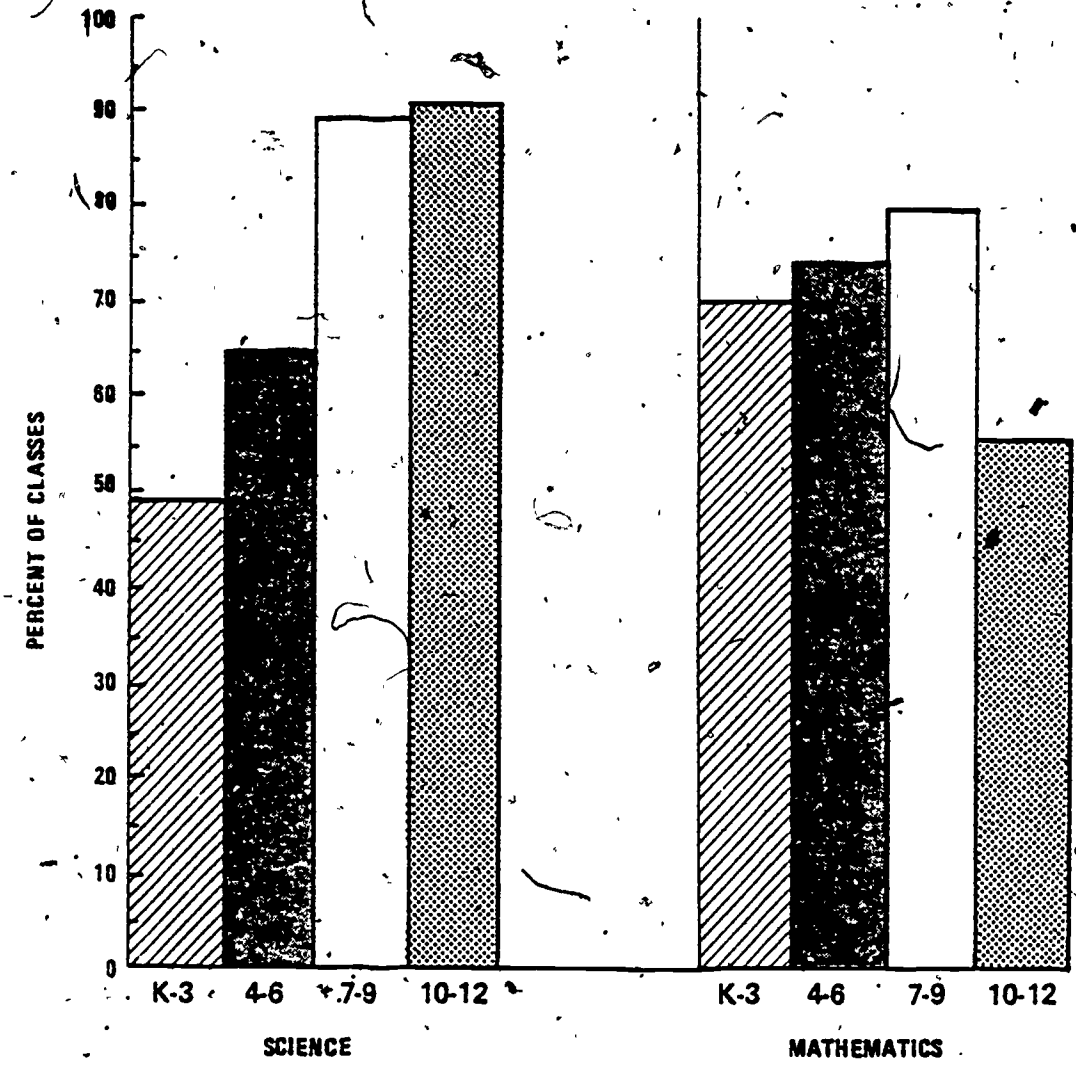

FIGURE 9: USE OF THE METRIC SYSTEM IN SCIENCE AND MATHEMATICS CLASSES

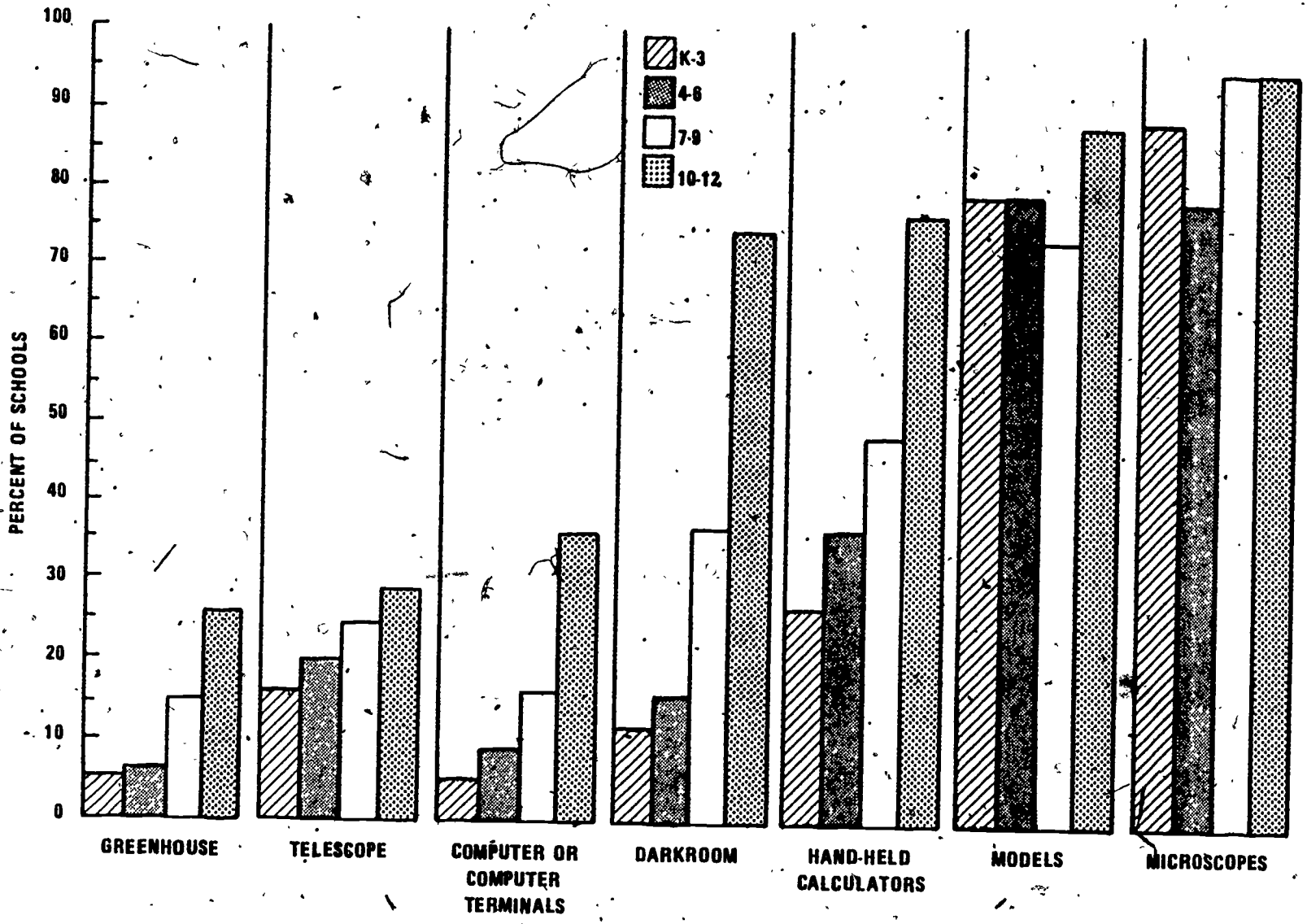

FIGURE 10: AVAILABILITY OF EQUIPMENT IN SCHOOLS, BY GRADE RANGE

Teachers of science in grades K-6 were also asked about the facilities they use for teaching their classes. Slightly more than half of all elementary school classes receive science instruction in classrooms with portable science materials. As shown in Figure 11, only 4 percent of the elementary science classes (and virtually all of these are grade 4-6 classes) are conducted in laboratories or special science rooms; more than a third of the classes are conducted in classrooms with no science facilities at all.

Teachers were also asked to rate the adequacy of various aspects of facilities, equipment and supplies for teaching their classes. The two areas rated "improvement needed" by more than half of the teachers were availability of laboratory assistants or paraprofessional help and money to buy supplies on a day-to-day basis. These two problems were considered serious in all subjects and at all grade levels.

E. State and Local District Supervision/Coordination

State course requirements for high school graduation are heavier in social studies than in mathematics or science: in grades 9-12, most states require only 1 year of mathematics and science but more than 1

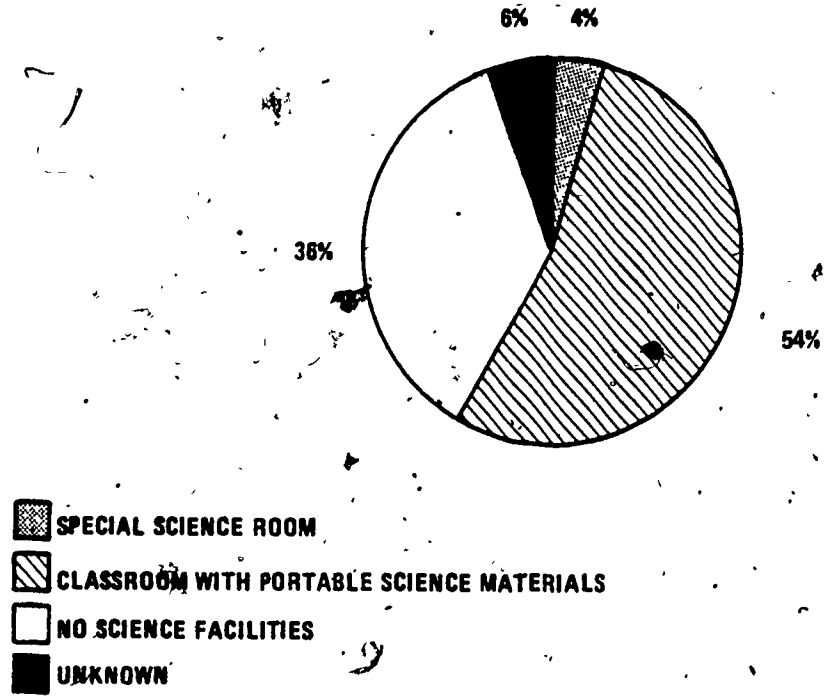

FIGURE 11: TYPES OF CLASSROOMS USED BY K-6 SCIENCE CLASSES

year of social studies. Very few states currently require specific competencies in these subjects, but a number of states are planning to implement such programs. Approximately a third of the states are planning to implement competency programs in mathematics, while 22 percent plan to do so for social studies and 13 percent for science.

Approximately 25 percent of the states and 40 percent of the districts set guidelines for minimum instructional time in one or more of the elementary grades. Relatively few districts set guidelines for kindergarten instruction, and those that do recommend a minimum of only approximately 15 minutes per day each for science, mathematics, and social studies. In grades one through three the recommended minimum time for mathematics is 30 minutes on the average, while the recommended minimums for science and social studies are approximately 20 minutes each per day. In the higher elementary grades the recommended minimum times for the 3 subjects are all in the 30 to 40 minute range, with no major differences between subjects.

In addition to questions about district requirements and curricula, respondents to the district curriculum questionnaires were asked about their professional activities. While allegiance to a particular subject area appears to be stronger at the secondary level than at the elementary level, in no case did as many as a third of the respondents indicate membership in their subject area's professional organizations, e.g., the National Council of Teachers of Mathematics, the National Science Teachers Association and the National Council for the Social Studies. Similarly, fewer than 50 percent of the respondents reported attending a professional meeting in the subject of interest at the state, regional or national level during the 1975-76 school year.

F. Factors Which Affect Instruction in Science, Mathematics, and Social Studies Education

Insufficient funds for purchasing equipment and supplies, and lack of materials for individualizing instruction are serious problems affecting K-12 science, mathematics, and social studies instruction according to all groups queried (teachers, principals, and state and local supervisors). Inadequate facilities are also considered a serious

problem in science at all grade levels. Interestingly, all groups except teachers consider inadequate articulation of instruction across grade levels to be a serious problem.

Several problems appear more serious in the elementary grades than in the secondary grades, including lack of teacher planning time in all three subjects. For elementary science and social studies, the belief that these subjects are less important than others and inadequate time to teach these subjects are also considered major problems. It is interesting to note that all groups except the teachers themselves consider inadequate teacher preparation and lack of teacher interest to be major problems in K-6 science instruction.

Two problems are considered serious for science, mathematics and social studies instruction in grades 7-12: inadequate student reading abilities and lack of student interest in the subject.

Surprisingly, difficulty in maintaining discipline was not rated a serious problem for science, mathematics, or social studies instruction by teachers, principals, or state and local supervisors. This result is not consistent with findings of some other recent studies which indicate great concern over discipline-related issues.

FOR MORE INFORMATION:

A more detailed treatment of the results of this survey can be found in the technical report. Copies of the technical report of the 1977 National Survey of Science, Mathematics, and Social Studies Education and additional copies of this Highlights Report may be obtained from the ERIC Document Reproduction Service (EDRS)[1] and from the National Technical Information Service.[2] Copies will also be available from the Government Printing Office.[3] In addition, persons interested in using the survey data to conduct additional analyses may obtain a copy of the Public Release Data Tape and the accompanying User's Manual from the National Technical Information Service.

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