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ABSTRACT

A study was made of the book selection procedures and collections in the area of fourth grade science (astronomy and earth science) in 12 elementary schools in two Southwestern school districts. The six schools in District 2 utilized a local buying list in their acquisitions, those in District 1 did not. The hypothesis to be tested was that as selection procedures for elementary school libraries become less centralized and standardized, that is, not under the control of a local buying list, the quality of the collections improves because school librarians and teachers are more actively involved in selection. Through visits to the schools, data were collected using questionnaires and structured interviews with teachers and librarians, socioeconomic and reading achievement data from school records, a comparison of the school's science collection with a standardized list, and acquisition records for the past five years. Results indicated that teachers were not deeply involved in the selection process. The local buying list and exhibits seemed to create more interest in selection. Despite different selection procedures, the science collections in District 1 and District 2 were not appreciably different. (Author/SL)

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AN ANALYSIS OF BOOK SELECTION PROCESSES FOR ELEMENTARY SCHOOL LIBRARIES

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PROBLEMS IN BOOK SELECTION FOR ELEMENTARY SCHOOL LIBRARIES

The selection of books appropriate to the abilities, needs, and interests of students in individual schools is a recognized principle of professional library service. In an ideal situation, librarians and teachers select books for libraries from reviewing media, exhibits of new books, and examination copies. Adequate selection is dependent upon adherence to a selection policy built upon knowledge of the existing collection, the school curriculum, the reading abilities and subject interests of students, and the criteria for the selection of books.

Unfortunately, these ideal conditions for book selection seldom exist in elementary schools. In addition, there are several factors which have made the problem of adequate selection even more difficult. These factors are (1) a shortage of trained librarians for the nation's growing number of libraries, (2) a tremendous increase in the amount of funds available for books during the last few years, (3) a rise in the number of children's books in print, and (4) the inadequacy of existing selection aids. In the future, elementary school libraries may be called upon to assume increasing responsibilities in library services for children. A review of these factors affecting book selection for elementary school libraries is presented in the following pages.

Factors Affecting Book Selection

Shortage of Librarians

The shortage of professionally trained personnel is one of the major problems. Whereas only 20 per cent of the nation's elementary schools had centralized libraries and at least half-time librarians in 1963,[1] by 1969 approximately three-fourths of the nation's elementary schools had centralized collections and personnel who were designated as librarians.[2] This rapid increase in the number of libraries is due partly to the fact that, in order to be eligible for Title II program funds of the Elementary and Secondary School Act of 1965, school systems were required to certify the presence of libraries in individual schools before funds for library books and other instructional materials could be obtained. However, many of the personnel assigned to serve as librarians in these libraries lack adequate training. Professionally trained personnel with master's degrees in library science are still scarce.

Increases in Library Budgets

A second problem which may hinder ideal selection procedures is that increases in library budgets have paralleled the exponential growth of elementary school libraries. Funds for library materials are available to schools under several federal legislative acts. Almost six hundred million dollars have been appropriated during the last seven years, 1966 to 1972, for library resources, textbooks, and other instructional materials under Title II of the Elementary and Secondary Education Act of 1965.[3,4,5] An additional ninety million dollars have been recommended for the fiscal year of 1973.[6] Title I of the same act has provided local public school systems with

approximately ten times the amount of funding as that provided under Title II to improve education for children of low-income families.[7] Portions of these former funds have been channeled into expenditures for library personnel, facilities, and materials. Title III funds are available to local school systems for innovative programs. Media centers equipped with dial-access retrieval systems and system-wide instructional materials centers are examples of library programs funded under Title III.[8,9] No matching funds are required to participate in these three titles of the Elementary and Secondary Education Act, but the materials purchased with Title II funds must be in addition to materials purchased with local funds for school libraries.

Additional federal funds have been available to the schools under the National Defense and Education Act. Title III of this act has provided funds since 1958 to local school systems for materials to supplement textbooks in various subject areas. Individual school systems are required to provide matching funds.

Local budgets for school libraries have also increased over the past decade. Curricular methods which employ many forms and reading levels of resource materials have also created demands on the schools to increase library budgets. School administrators have been challenged to build better library collections by two sets of standards for school libraries published during the past decade. The Standards for School Library Programs, published in 1960 by the American Association of School Librarians, suggested a minimum annual expenditure, for schools of 250 or more students, of $4.00 to $6.00 per pupil for printed materials.[10] The recently published Standards for School Media Programs recommend that approximately "6 per cent of the national average for per pupil operational cost...should be spent per year per student.[11]

Rise in Number of Children's Books In-Print

A further problem compounds the difficulty of adequate selection. The number of new juvenile titles published annually in the United States increased 66 per cent in two years, from 1960 to 1962.[12] The volume of publishing remained above two thousand new titles per year until 1969, when it dropped to 1,321.[13] Even though the number of juvenile titles published in 1969 declined almost 40 per cent from the number which were published in 1968, publishers' sales showed an annual decline of only 10 per cent for children's books costing one dollar or more.[14] Juvenile output of new titles rose to an average of slightly more than two thousand titles again in 1970 and 1971.[15,16]

Purchases in bookstores by individuals undoubtedly accounted for a portion of the annual sales, but 80 to 85 per cent of children's book sales are made to public and school libraries.[17] Sales are not likely to decrease in volume in the foreseeable future because of (1) the rise in the number of libraries, (2) larger collections, and (3) educational demands for a variety of books to enrich the curriculum.

Inadequacy of Existing Selection Aids

In the past, librarians have relied heavily upon recognized reviewing media to evaluate new books. Unfortunately, the reviewing media have not been able to increase their coverage of new books in order to compensate for the discrepancy between trained personnel and libraries. Figure 1 on page 5 shows the relationship between the growth in publishing and the growth in the number of reviews of juvenile books in four major reviewing media.

Several recent investigations furnish evidence concerning the coverage of reviewing media which evaluate new juvenile books. Anderson analyzed

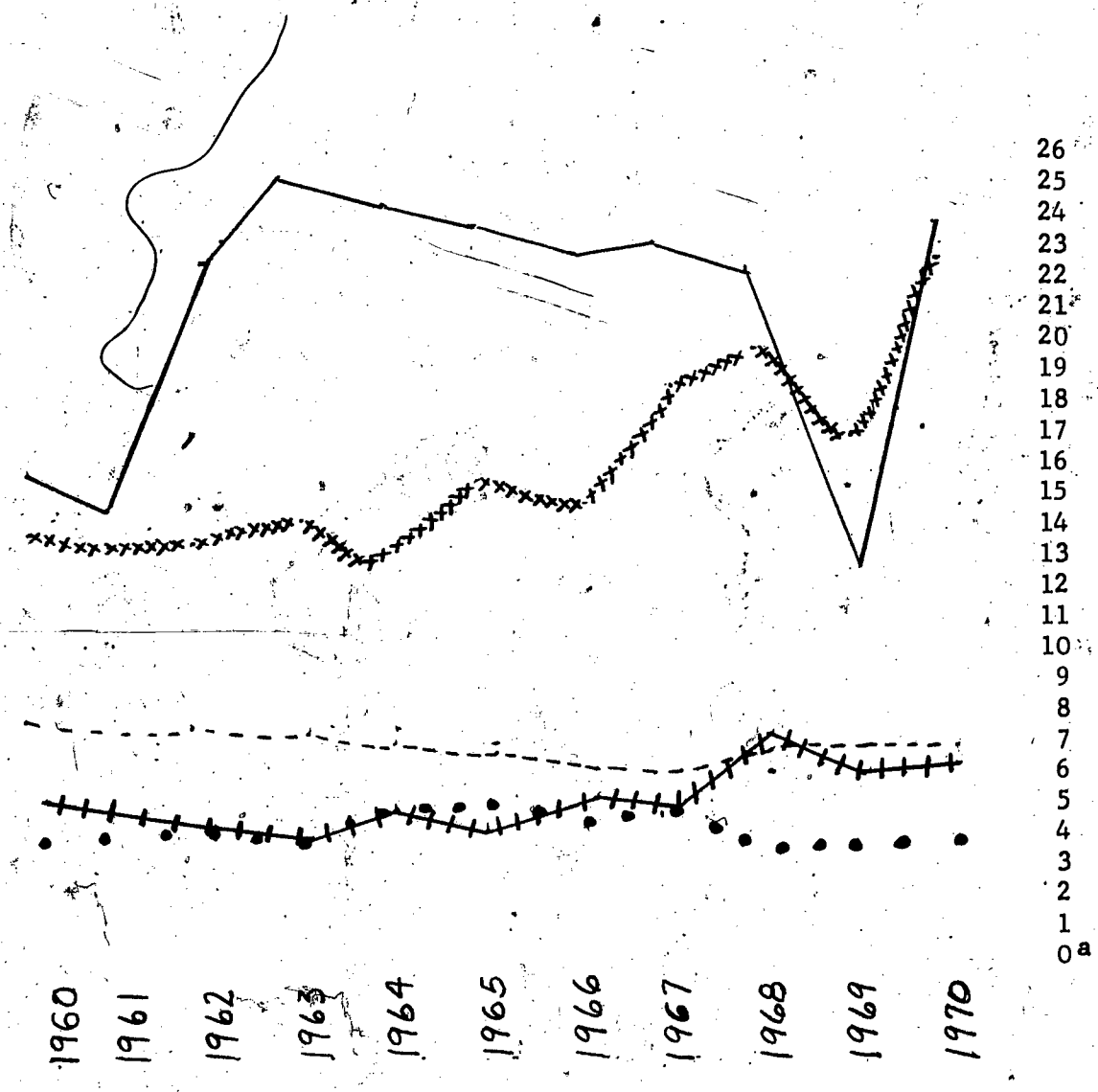

Figure 1. Juvenile Book Publishing and Reviews of Juvenile Books by Four Reviewing Media, 1960-1970[b]

——— Publishing
+++++ BOOKLIST
------- BULLETIN OF THE CENTER FOR CHILDREN'S BOOKS
..... HORN BOOK
xxxxxxx SCHOOL LIBRARY JOURNAL

[a]Publishing in thousands.

[b]Sources for publishing and book review information: American Library and Book Trade Annual: 1960 (New York: R. R. Bowker, 1959), p. 56; Bowker Annual: 1962 (1961), p. 74; Bowker Annual: 1964 (1964), p. 86; Bowker Annual: 1965 (1965), p. 99; Bowker Annual: 1966 (1966), p. 116; Bowker Annual: 1967 (1967), p. 102; Bowker Annual of Library and Book Trade Information, 1968 (1968), pp. 38,54; Bowker Annual of Library and Book Trade Information, 1971 (1971), p. 93; Publisher's Weekly, XCCVII (February 9, 1970), 38; Publisher's Weekly, XCCIX (February 8, 1971), p. 32.

reviews of juvenile books published in 1955, as announced in Publisher's Weekly. She found that one-fourth of the titles were not reviewed by any one of the following reviewing journals: the Booklist, Bulletin of the Center for Children's Books, the Horn Book, and School Library Journal (then Junior Libraries).[18]

According to calculations reported by Lohrer, the Booklist reviewed 33 per cent of the books published in 1960; the Horn Book reviewed 25 per cent of the books published in 1960; the Bulletin of the Center for Children's Books reviewed less than 50 per cent of the annual list; and Junior Libraries reviewed almost 90 per cent of the year's publications. A check of the same reviewing media by Lohrer in 1964 revealed almost identical coverage.[19]

Galloway examined reviews in eight reviewing media of juvenile books which were published in 1959. She found that 25 per cent of the books were reviewed in none of the media while only fourteen titles were reviewed by all eight media.[20]

In an analysis of the reviewing of children's books for a University of Chicago Conference on Children's Literature, Zena Sutherland compared the coverage by the Booklist, Bulletin of the Center for Children's Books, the Horn Book and School Library Journal of 2,299 books reviewed in 1965. She reported that School Library Journal reviewed 927 books, the Bulletin of the Children's Book Center reviewed 350 books, Booklist reviewed 139 books and Horn Book reviewed 85 books. Only ninety-four titles were reviewed by all the media.[21]

Subject coverage also appears uneven. Sutherland found only 28 non-fiction titles in the group of 94 books reviewed by all four media.[22] Boyd analyzed reviews of the juvenile non-fiction titles which were listed in

the Book Review Index. She found that 29.3 per cent of the 1965 publications had received no reviews. Five hundred and fourteen books had been reviewed. Only 25.3 per cent of the books received more than four reviews; 40.5 per cent of the books received fewer than two reviews. The subject of a book appeared to influence reviewing coverage. Folklore was reviewed most often; religion and travel were reviewed least often. A month's sample of the reviews appeared to indicate that a larger percentage of fiction was reviewed, and was reviewed by more media, than were the non-fiction titles.[23]

In particular, the reviewing media appear unable to evaluate adequately the flood of science books which have been published during the last few years.[24] Christon examined the reviewing media for reviews of the 185 science books published in 1968 that were listed in Publisher's Weekly as suitable for junior high school students. She found that thirty-six titles received no reviews. Science Books and the School Library Journal reviewed over 60 per cent of the titles; Booklist included just under 50 per cent of the titles; and Horn Book, the Bulletin of the Center for Children's Books and Appraisal each reviewed less than 15 per cent of the total. Two titles were reviewed before publication; no title was reviewed by all six media. Twelve titles were included in five of the six reviewing media. The reviews of these twelve titles were analyzed for usefulness to personnel who selected books for school libraries. The investigator found that subject specialists wrote the most critical reviews. Literary quality, scope, adequacy of subject coverage, and details of illustrations and bindings were usually included in most of the reviews, but special features, description of physical format, age and grade levels, comparisons with other books, and notes about reader interests were less frequently included.[25]

In her study of the children's books reviewed in 1965 by Booklist, Bulletin of the Center for Children's Books, Horn Book, and School Library Journal, Sutherland noted that only 4 per cent of the titles reviewed by all four media were science titles. None were in the physical sciences. Approximately 12 per cent of the science titles were reviewed by one, by two, or by three of the media.[26]

Boyd found in her study of books published in 1965 and included in Book Review Index that less than 25 per cent of the science books received two or fewer reviews and that 23 per cent received more than four reviews. She concluded that coverage of science books was significantly more adequate than was the coverage for all of the non-fiction.[27]

Several of the investigators questioned the ability of the reviews to evaluate literary quality and to designate features of the books about which teachers and librarians need to know.[28,29]

> Present reviewing practices of the eight selected media, as revealed in the analysis of 126 reviews of fourteen books, showed the reviews to be inadequate in providing some of the kinds of information teachers and librarians need to select books for school collections. In opposition to the stated policy of several of the editors, many of the reviews failed to include information such as comparisons with other books by the same author or other books on the same subject, reader interests to which a book would appeal, specific uses that might be made of a given book, and format features other than the illustrations.[30]

Approved Buying Lists

Another medium used in the evaluation of books is the approved buying list. The state-approved buying lists were originated to guide principals, teachers, and untrained teacher-librarians in the selection of books for school libraries. Principals and teachers were often unfamiliar with the

best known of approved selection aids, such as the Children's Catalog or the Graded List of Books for Children, sponsored by the American Library Association. The buying lists, containing books evaluated by trained librarians and subject specialists, were designed to protect school personnel from reliance on book salesmen and publishers' catalogs. The lists, issued by the state departments of education, served as guides for purchases with state funds.

Henne discussed state buying lists in her doctoral study, "Preconditional Factors Affecting the Reading of Young People." She noted that, in 1945, twelve states still had buying lists which included books for elementary school libraries and seven states had separate lists for elementary schools.[31] Although she admitted that the selection of books from reviewing media and state buying lists might create collections which were similar, she saw that

> The chances are much greater that more harm would result if no basic guides for book selection existed. With the vast quantity of material published, with the large number of mediocre books appearing daily, and with the lack of opportunity open for the average librarian or teacher to examine books before purchasing them, some reliable guide to book selection becomes essential. The standard book selection aids and book lists and the state approved book lists provide such guides.[32]

Henne concluded that "some plan for one general list to be adopted by all states would seem worthy of exploration so duplication of time and effort expended in the construction of state lists might be avoided."[33]

Ten states presently issue lists, according to information contained in the third edition of the School Library Supervisors Directory.[34] In some states, use of a list is not mandatory but merely suggestive. Other states issue lists of titles approved for purchase by ESEA funds. Instead of lists

of titles, most states issue lists of approved selection media which may be used as sources in selection.

The transition from a list of book titles to a list of selection sources is evident in a recent "Directions for Ordering School Library Media,"[35] produced by the School Library Services Unit of the Georgia State Department of Education. This School Library Services Unit issues a book list triennially, with annual supplements. The state lists: bibliographies on special subjects prepared by the School Library Services Unit, national lists, national reviewing media, and professional journals are approved sources for orders purchased with state funds. Exhibits, composed of copies of the newest books included on the state lists, are available to local schools to aid in evaluation and selection of library books. Catalog cards also may be ordered from a state unit.

Two surveys, made in the 1950's of selection procedures for children's books, reported use of local buying lists by large city school systems.[36,37] Data were obtained by Spain from public and school librarians about selection procedures. She found that

> ...many supervisors of work with children in public libraries and some in schools issue lists of titles approved for purchase. Lists are based on the reviews and recommendations of staff book committees and in some systems become the order form.[38]

Supervisors reported that they and librarians checked publishers' announcements, book lists, and reviews in national selection aids, as well as reviews appearing in professional literature. Titles were received automatically or were ordered from publishers for examination and review. In school systems, teachers, librarians, administrators, and subject supervisors cooperated in book selection.[39]

Hodges reported that school library supervisors were attempting to improve book selection by (1) preparing local lists of books approved for purchase, or (2) stressing the importance of the professional aids.[40]

> However, the supervisors reported two to one that they approved lists of recommended current books, sent from the central office as guides to schools wishing to buy new books not yet included in the standard lists.[41]

Weaknesses of local buying lists.-- Some librarians have questioned the use of local buying lists. They suggest that approved buying lists may limit the ability of librarians and teachers to select books to provide for the wide range of abilities and interests of students. They ask if it is possible for a list to contain the appropriate books for the needs of the minority child in the inner city, the "average" reader in the suburbs, and the gifted student in a special education class for the physically handicapped.[42,43]

Lists also may contain inadequate information about titles for selection purposes. Vann suggested that centralized processing centers might aid in selection by "issuing book buying lists, with sources of reviews and annotations, for further selective appraisal."[44] Many approved buying lists, because of the factors of time and cost, contain only basic bibliographic information, symbols to designate age and reading levels, and items useful in the data processing of orders.

Another problem associated with buying lists is the amount of time involved in the compilation and physical preparation of the lists. Hensel and Veillette recommended a re-evaluation of the buying list in their survey of library order procedures:

> A number of school systems prepare lists of books approved for purchase and place orders once or twice a year. By the time the lists are compiled and the orders placed, many of

> the books may be out of stock or out of print. Since it is primarily the schools that order once or twice a year, the practice may stem from the fact that lists of approved books must be compiled before orders can be placed.[45]

Orders placed continuously throughout the year appear to be advantageous for both the jobber and centralized processing facilities.

The evaluation process may be prolonged by administrative procedures: time for committee members to read and discuss books, time for books to be placed on local approved buying lists, time for librarians and teachers in individual buildings to select and order books. Because of the slowness in obtaining new materials, the evaluation procedures for instructional materials of the Montgomery County, Maryland, Public School System were revised in 1969 to improve the selection of library books. From 1962 until 1969, library books were added to a local buying list whenever they were approved by a combination of three reviews. At least one of the favorable reviews had to be written by a professional staff member who was competent in the subject content of the book. The other two reviews might come from professional journals or selection aids.

Under the new regulations, librarians and teachers in individual buildings assume more responsibility for evaluation. All titles which are favorably reviewed in standard selection media and professional journals are automatically approved for purchase. Copies of standard selection media are available in each school. Books which are not listed in the approved selection aids may be requested for examination. If they have been examined and approved by a librarian or a teacher in another local school, they are listed in a file in the central Review and Evaluation Section. Books not approved by personnel in one school may be re-evaluated by personnel in another school. Lists of books approved for purchase are issued periodically.[46]

School Libraries Accept Further Responsibilities

The problems that have been discussed in the preceding sections, -- i.e., the shortage of adequately trained librarians, the growth in funds available for library materials, the increase in the number of children's books in print, and the apparent inability of reviewing media to evaluate books adequately for school libraries--may soon be compounded as these libraries accept further responsibilities in the educational process and in library services for children.

A greater emphasis on understanding basic concepts and the skills to use them in future problem-solving situations has created a need for more source materials. The library, as a supplier of all forms of learning resources, may serve as a laboratory. The Standards for School Media Programs describe a service facility which provides:

> Consultant services to improve learning, instruction, and the use of media resources and facilities
>
> Instruction to improve learning through the use of printed and audio-visual resources
>
> Information on new educational developments
>
> New materials created and produced to suit special needs of students and teachers
>
> Materials for class instruction and individual investigation and exploration
>
> Efficient working areas for students, faculty, and media staff
>
> Equipment to convey materials to the student and teacher[47]

Media center teams will need to work closely with teachers. Frances Henne expressed the following opinion regarding the librarian's role in the school:

> We envision daily consultation with teachers, full-time media specialists on each teaching team, continuous representation in curriculum planning and development, as well as the important work that goes on with the students.[48]

At the same time that librarians are becoming more actively involved in the teaching process, teachers are learning to rely upon media centers for materials to improve their teaching. It is proper that they be actively involved in the selection of materials they will use. The results of a recent survey of existing examination centers indicate that 85 per cent supply advice on items to individual teachers and librarians; 79 per cent conduct workshops to acquaint teachers and librarians with selection criteria, new materials, and uses of media in teaching; 78 per cent evaluate current materials and exhibit these materials for teachers and librarians to examine; and 56 per cent conduct evaluation of older materials.[49]

Recommendations for improvements in examination centers includes the suggestion that more use be made of national reviewing media in the evaluation process.[50] Thirty-eight interviews in centers revealed that only 30 per cent of them maintained adequate evaluation files.[51] Phase II of the Examination Centers Project, to be published during 1972, will recommend guidelines for model centers to be established within school, public library, and college systems.[52]

Improved cooperation between school libraries in a region appears feasible. Henne envisions national and regional bibliographic centers which would assume responsibility for evaluation of materials.[53] In addition, some librarians are now suggesting that school media centers, in the future, will accept a part or all of the responsibilities now assumed by the children's departments of public libraries.[54,55]

Purpose and Procedures of Study

Because of these growing problems in book selection procedures in elementary schools, it is the purpose of this study to investigate selection procedures and collections in two Southwestern school districts. The investigation concerns six elementary schools in a district which has a local buying list and six elementary schools in a district which has no local buying list in order (1) to test the effect of one variable, the local buying list, upon the participation of personnel in the selection process and upon the adequacy of the resulting collections, and (2) to answer, for the two school districts, the following questions:

1. Do librarians responsible for book selection in individual schools know their school communities and curricula, involve teachers in the selection process, and examine books--or do they rely on starred items in reviewing journals, basic lists, and publishers catalogs?

2. Do faculty subject specialists and teachers aid in the evaluation of subject materials, read reviews, and examine books at publishers' centers and bookstores?

3. Are librarians knowledgeable about selection criteria?

4. Are faculty members knowledgeable about selection criteria?

5. Do local buying lists cause less participation by teachers in individual school selection?

6. Do local buying lists slow the acquisition process because of the time for books to be evaluated and added to lists?

7. Is there a significant difference between the collections selected independently by librarians and teachers, and those selected from local buying lists?

8. Is it possible for varying abilities and interests of students to be met from these centralized lists

(especially the needs of the disadvantaged for easy reading and enrichment materials)?

In deference to administrators' requests, the districts and the twelve elementary schools are designated by numerals. District I has no annual buying list nor exhibit. Librarians, aided by teachers, compile book orders from suggestions in reviewing media and professional journals, from titles seen at professional exhibits and bookstores, and from examination copies. All elementary schools have full-time librarians, certified by the state.

District II maintains an exhibit, composed of most of the books listed in the annual buying list, which is open to teachers and librarians for approximately a month prior to compilation of the annual book orders. A certified librarian is assigned full-time to each elementary school with an enrollment of 1000 or more students. Each of the six schools visited in this system has a full-time librarian.

The six schools which were visited in each city were chosen from among the public elementary schools with full-time, certified librarians, who had been in their positions for the school year of 1967-68. From these, a random sample of two schools were selected from each of three strata: low, average, and high socio-economic levels.

Hypothesis and Data Collection

Data were collected by the investigator to test the following major hypothesis:

> As selection procedures for elementary school libraries become less centralized and standardized, the quality of collections improve because school librarians and teachers are more actively involved in selection.

In order to limit data collection, books in astronomy and earth science for fourth grade students were chosen as the focus of the study.

First, socio-economic data and school histories were collected through taped interviews with school principals and librarians in all twelve schools.

Then, reading scores from either the California Achievement Tests or the Iowa Tests of Basic Skills were taken from administrative records for students in the third grade during the school year, 1968-69. It was assumed that the test scores of all students as determined in March, 1969 would approximate their reading abilities when they entered the fourth grade in September, 1969. Reading specialists agree that scores on generalized tests do not necessarily reflect the correct reading abilities of students, especially students who are from the lower socio-economic level. However, the third grade scores were the only available bases for documenting the range and average reading abilities of the students. Scores from the test batteries selected have high correlations and may be used for comparisons.[56]

Within each of the twelve schools, fourth grade science teachers and librarians were interviewed concerning selection policies, procedures, bibliographic aids, and criteria. Subject consultants and supervisory library personnel who participated in evaluation and selection also were interviewed.

After the taped interviews were completed, additional data were obtained through forms distributed to all selection personnel. Librarians, fourth grade teachers, subject consultants, and supervisory library personnel were requested to rank selection aids, selection criteria, and selection activities in order of usefulness and importance.

As a measure of quality, a list of 265 books in astronomy and earth science (Dewey Decimal Classification divisions 520 and 550) were checked against holdings of the twelve libraries. The list was composed of all entries in the Children's Catalog, 1966 edition, and its annual supplements

for 1967, 1968, and 1969;[57] Phase I books of the Elementary School Library Collection, 1968 edition and its supplement;[58] and titles included in Books for Elementary School Libraries.[59]

Collections and titles of books on order during the school year of 1968-1969 also were compared with science textbook and curriculum bulletin bibliographies. While collections were expected to vary according to reading abilities and subject interests of students, it was also expected that all collections should include, as a minimum, those titles listed as corollary reading in the science textbooks and curriculum bulletins.

All earth and space science titles held in the Dewey Decimal Classification Divisions 520 and 550, with the exception of a few titles which were excluded, were assigned reading levels. Ranges in reading level, means and standard deviations were compared between collections and school reading test scores. Cross-analyses were made within each school system and between school systems by socio-economic strata.

The following data were used to provide additional indices for the adequacy of the collections: (1) use by librarians and teachers of public library facilities, (2) involvement of personnel in curriculum development, and (3) participation of librarians in service activities. Titles held in libraries which were not on the "quality" checklist were examined for reading level and subject relevance.

Finally, acquisition records were analyzed for the previous five years, 1964 to 1969, to determine the length of time elapsing between the date each order was placed and the dates the titles in the order were ready for circulation. Personnel in centralized processing facilities were interviewed concerning acquisition procedures. Librarians were queried about the lapse of

time between the ordering and the circulation of books. Publishing dates of the collections were examined.

Statistical Analysis of Data

Appropriate statistical tests were applied to the data to determine if there are significant differences between selection activities, awareness of selection criteria, and use of selection aids of (a) librarians and teachers who use a local buying list and (b) those who select independently. Comparisons also were made between (1) collections and student reading scores, (2) collections and textbook-related titles, (3) collections and a list of 265 books compiled from three basic selection aids, (4) recency of collections, (5) time elapsing between placement of orders and circulation of new books.

Organization of Report

Following a short discussion of the assumptions and limits of the study--and a summary of this chapter--a review of research especially relevant to the topic of selection procedures is presented in Chapter II. Then, a detailed outline of procedures used in the investigation is included in Chapter III. In Chapter IV, pertinent data are reported about the two school systems, the twelve elementary schools, and the communities they serve. Chapters V and VI contain analyses of the data. A final summary, conclusions, and suggestions of topics for further research appear in Chapter VII.

Assumptions and Limits of Study

For purposes of clarification, a statement of assumptions and limits for the study appears to be in order. (Definitions are included in Chapter III.) This investigator has chosen to use the terms "school library" and "school librarian" rather than "media center" and "media specialist" because personnel are designated as school librarians and the collections of materials are housed in school libraries in the two school systems. Services, media included in collections, and philosophies of individual librarians ranged along a lengthy continuum. One library included sculpture in its multi-media collection. Students used this library as a learning laboratory; teams were previewing filmstrips, tapes and single-concept films for classroom reports at carrels and small tables while another class with its teacher was browsing among the shelves. In another library, the librarian had spent the last fourteen years carefully building a collection for the specific abilities and interests of her lower middle-class students. Thus, she nurtured the reading achievement of her students through a warm and inviting atmosphere which provided individual attention to reading problems.

No materials were produced within any of the twelve libraries. Space, staff, and equipment varied. In all other respects, they met the basic principles established in recent standards for media centers.[60]

Non-book media were not included within the limits of this study. (However, it is hoped that the results of this study may be useful in establishing optimum selection procedures for both book and non-book media.) Why were they not included? First of all, kinds and volume of media other than books varied throughout the schools. Some librarians were responsible for equipment; others were not. Too, reviewing aids for non-book media are few

and new.[61] One system supervisor has been Director of Instructional Materials Services for several years; the library supervisor of the other school district assumed management responsibilities for all materials and services as recently as the summer of 1970. Lastly, non-book media are processed and cataloged in District II by an agency that functions independently of the book processing and cataloging agency.

Assumptions

In 1935, James Wellard wrote the following passage in his doctoral thesis, "Bases for a Theory of Book Selection":

> If we summarize the administrative problem confronting the book selector as primarily a sociological one of community analysis, the procedure will consist of taking a valid sample of the general reading population...and classifying readers according to homogeneous groups. This classification will take into account such traits as sex, age, occupation, education and any others which have been shown to correlate significantly with actual reading. Then an analysis of the groups' formal activities, of their social needs, and their reading interests will suggest certain requirements and deficiencies, some of which will be within the library to fulfill.[62]

One of the basic assumptions underlying this study is that students in the twelve elementary schools have varying reading abilities, socio-economic backgrounds, and interests which should be reflected in collections appropriate for these abilities and interests.

A second assumption is that selection procedures, personnel involved in selection, and bibliographic aids used in selection affect the resulting collections. Results of two previous studies concerning book selection for college libraries appear to support such an assumption.

The first study was performed by Danton in the 'thirties. He studied selection procedures, personnel, and use of bibliographic aids in twenty-four

colleges, drawn from a sample of eighty-six institutions with libraries having fewer than 50,000 volumes. A List of Books for College Libraries[63] was used as a scale to rank the libraries. Eleven of the libraries with the highest ranking were compared with thirteen libraries having the lowest ranking. Results showed, for the higher ranking libraries, (1) better educated librarians and college faculty, (2) more time and time more frequently spent in selection by both librarian and faculty members, (3) greater involvement and responsibility in selection by both the librarian and individual faculty members, (4) more co-operation of faculty within departments for selection, (5) greater use of more book selection tools, and (6) less reliance upon library committees to select in all subject areas.[64]

Evans collected data on book selectors and on circulation figures for recent English-language titles in four American universities. His data showed a statistically significant difference among circulation of titles selected by (1) librarians, (2) faculty members, and (3) blanket order procedures. Additional data supported his hypothesis that librarians were more successful in selection than were faculty members because librarians had more contact with students. He suggested that the greater contact of librarians with the entire student body made them more aware of student needs and interests.[65]

A third assumption underlying this analysis of selection procedures is that district or regional centers, regardless of the size of collections or of the number of services, are unable to substitute for the activities of a trained librarian in an individual school. The pivotal role of the librarian in successful selection for college libraries has been identified in the studies mentioned in the preceding paragraphs. Perhaps the greatest problem associated with elementary school libraries has been the lack of centralized

facilities and librarians to organize collections and services. Gaver's study entitled Effectiveness of Centralized Library Service in Elementary Schools provides data concerning the relationship between types of service organization and several variables in five elementary schools in New Jersey and one school in Pennsylvania. Two of the schools had organized libraries with librarians, two schools had centralized collections but no librarian, and two schools had only classroom collections. Findings were clearly in favor of the organized school library when such factors were considered as (1) quantity and quality of materials, (2) accessibility of resources and services, (3) library-related activities and, to a lesser degree, in (4) student mastery of library skills, and (5) amount of student reading. Sixth-grade students were used to test the latter two hypotheses as well as to determine measures of quality of reading, reading achievement, and reading purposes and interests. No evidence was found to support the clear superiority of the organized school library for the last three hypotheses. Scores of the Iowa Tests of Basic Skills tended to show higher educational gains, between grades four and six, for students who had access to a school library than for students in the schools served by centralized collections and classroom libraries.[66]

Summary

The process of book selection in elementary schools is beset by problems: increases in the number of libraries and funds, and a shortage of trained librarians. National reviewing media appear inadequate to evaluate the 35,000 children's books that are in print today. Local buying lists--which might serve as substitutes for national reviewing media--often are expensive to produce and may hamper adequate and quick selection for the various

abilities, needs, and interests of children. These problems may be increased if school libraries accept larger roles in the educational process and in services to children.

The present study is designed to test the hypothesis that teachers and librarians, who have freedom to select from a wide range of bibliographies, exhibits, and professional journals are more actively involved in building adequate collections for their particular school's needs than are personnel who are limited to selection from a local buying list.

FOOTNOTES FOR CHAPTER I

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[28]Lohrer, "A Spotlight on Reviewing, " p. 852.

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CHAPTER II

REVIEW OF RELATED RESEARCH

The following review of related research contains the results of five recent doctoral studies. Two of the investigations contribute data concerning selection personnel and procedures for elementary school libraries. A third study reports the results of a comparison of national selection aids and a local buying list prepared for the Detroit Public Library. The last two studies were designed primarily to investigate the adequacy of science collections in Michigan high school libraries. Other pertinent research findings which deal with only one aspect of the present topic--the adequacy of selection aids for current books, selection criteria, and processes or personnel involved in selection--were included in Chapter I or will be included in later chapters whenever they are appropriate.

Book Selection in California Elementary Schools

McCartney surveyed the elementary schools in California "to investigate, compare and evaluate selection procedures for instructional materials."[1] She collected data in 1959 from administrators of 248 city school districts and fifty counties with a three-part questionnaire: (1) a checklist to determine current selection practices, (2) a weighted instrument to secure evaluations of selection processes, and (3) an open-ended form to enable respondents to include comments. Data were obtained about the selection of supplementary textbooks, library books, and non-book media. Only the results dealing with library books are included here.

Responses to questions were divided into five categories by size of the school districts: fifty-four county offices which served districts with not more than 900 each in enrollment; 190 districts with enrollments of 900 to 4,999; thirty-three districts with enrollment between 5,000 and 9,999; twenty districts with enrollment between 10,000 and 29,000; and five districts with enrollment of more than 30,000 students each.[2]

In a majority of districts, the procedure employed for the evaluation and selection of library books was the committee. The percentage of responsibility assumed by committees varied from 100 per cent in the five districts with an enrollment of more than 30,000 to only 25 per cent in the districts that were served through county offices.[3]

The composition of committees also varied according to the size of a district. The committee was more likely to be composed of administrative and supervisory personnel in the larger districts. In the medium-sized and smaller districts, committee membership might be either appointive or volunteer and was more likely to include individual teachers and librarians than in the large districts.[4]

The group of largest districts reported that all books were read before purchase. The other districts were more likely to use reviewing media--either alone in selection or to compare with local evaluations. The larger districts usually had written book selection policies and organized programs for the training of selection personnel.[5]

McCartney listed six selection aids in her questionnaire: Children's Catalog and a Basic Book Collection for Elementary Grades were the two titles checked most often by respondents from all the districts.[6] A table, in Appendix A, contains data about selection aids and selection personnel from

the McCartney study and from a study done in Pennsylvania by Sheriff. (The Sheriff study is described on the following pages.)

Comments from the "opinionnaire" and the open-ended section of the questionnaire indicated the following weaknesses in selection practices:

1. At least 70 per cent of the districts lacked librarians with the minimum library science training required to receive certification in California.

2. Regardless of the size of the district, administrators emphasized the need to increase the involvement of individual teachers--those who use library resources--in the evaluation and selection of materials.

3. Personnel from the large districts reported that selection procedures were time-consuming. Only 40 per cent of the respondents from the largest districts indicated that library books were frequently selected with a minimum of time and effort.[7]

4. Except for the five largest districts, few administrators reported that written selection policies were available.

Book Selection in Pennsylvania Elementary Schools

Sheriff also used a questionnaire to survey sixty Pennsylvania school districts in 1965 about selection practices for elementary schools.[8] He analyzed data to test four hypotheses built upon the assumption that quality of library book selection improves with the presence of a centralized library and a librarian.

The state director of school libraries and the directors of the school libraries of Philadelphia and Pittsburgh assisted Sheriff in developing a weighted section of the questionnaire to use in ranking schools according to the number of selection aids that they used. Five categories of selection aids were established:

Inferior

Only PUBLISHER'S CATALOGS and current magazines

Insufficient

One basic list and one or more periodicals evaluating current output

Adequate

CHILDREN'S CATALOGS (sic)
BASIC BOOK COLLECTION FOR ELEMENTARY GRADES
BOOKLIST AND SUBSCRIPTION BOOKS BULLETIN
SCHOOL LIBRARY JOURNAL

Good

CHILDREN'S CATALOG
BASIC BOOK COLLECTION FOR ELEMENTARY GRADES
BOOKLIST AND SUBSCRIPTION BOOKS BULLETIN
SCHOOL LIBRARY JOURNAL
THE PAPERBACK GOES TO SCHOOL
THE AAAS SCIENCE BOOK LIST FOR CHILDREN

Superior

CHILDREN'S CATALOG
BASIC BOOK COLLECTION FOR ELEMENTARY GRADES
BOOKLIST AND SUBSCRIPTION BOOKS BULLETIN
SCHOOL LIBRARY JOURNAL
THE PAPERBACK GOES TO SCHOOL
THE AAAS SCIENCE BOOK LIST FOR CHILDREN
CHILDREN'S BOOKS TO ENRICH THE SOCIAL STUDIES FOR THE ELEMENTARY GRADES
HORN BOOK
A BIBLIOGRAPHY OF BOOKS FOR CHILDREN
Evaluative reviews in subject area professional magazines[9]

To test the reliability of the questionnaire, the investigator conducted interviews in sixteen districts. He found 89.84 per cent agreement between the questionnaires from those districts and the interviews.[10]

Only 8.77 per cent of the school districts were ranked "superior" according to the number of selection aids they used; slightly over 10 per cent of the districts were ranked "good" and nearly 30 per cent of the districts were

ranked "adequate." More than one-half of the fifty-seven districts reported the use of only one basic list and one or more periodicals to evaluate new books. They were ranked "insufficient" in the use of selection aids.[11] A chi-square test, significant at the .01 level, supported the hypothesis that the quality of library book selection ranks higher in schools with centralized libraries than in schools which have only classroom libraries.[12]

The second hypothesis of the study--that the quality of book selection, as measured by the ranking of selection aids, is higher in schools which employ full-time librarians--was supported by a chi-square test at the .001 level.[13] Forty-eight per cent of the districts reported that they employed a "full-time certificated librarian or an endorsed librarian."[14]

The third hypothesis was not supported by evidence. No significant difference was found between the selection aids used in districts that employed librarians to serve part-time in individual schools and those that did not employ librarians.[15]

The fourth hypothesis, namely, that the amount of the library budget did not correlate with nor have an effect on quality of selection, as measured by the number of selection aids that were used, was not supported by the evidence. Using a t-test, Sheriff found that a significant difference, at the .005 level, existed between the library budgets of the districts rated "adequate" and those rated "insufficient."[16] (See table in Appendix A for data concerning aids, personnel, and evaluation methods.)

Use of a Local Buying List for Detroit Public Library

The third stury, reported by Shearer, was concerned with public library book selection processes.[17] He compared the titles on the Detroit Public

Library Home Reading List with the young adult and adult sections of the Booklist and the Bulletin of the Virginia Kirkus Service to determine the number of identical titles on each list. Shearer, like McCartney, found the literature concerned with book selection processes "predominantly uninformed, unsystematic and unsatisfactory, especially if it is meant to help librarians decide what method of selecting library materials would work best in a known library environment."[18]

To test his assumptions concerning the method of selection--the use of an expensive, local list versus the use of national reviewing media--Shearer hypothesized that a local book selection process could no longer be said to be effective in terms of the books selected unless the contents of the locally produced list differed substantially (by 15 per cent or more) from the published lists.[19]

The investigator reached several conclusions after his study of the 1964 Home Reading Lists and comparable issues of the Booklist and the Bulletin of the Virginia Kirkus Service.

The Detroit Home Reading List is expensive to produce. Shearer estimated that the 1964 list cost more than forty thousand dollars. This estimate included the salaries of the librarians who served on evaluation committees and of book selection department personnel as well as of those specialists in young adult, fiction, the "Browsing Library," and technology and science collections who contributed their suggestions. An additional twenty thousand dollars of hidden costs--the estimated time librarians spent reviewing books at night or on weekends--should be included in the total costs.[20]

Not only did Shearer find the local list expensive to produce; he also questioned if it were feasible to have nine or ten librarians involved in

the evaluation of every title that appeared on the List. He asked if selection in each branch library or department might not be cheaper and save time, in comparison to a "centralized list."

The investigator reported considerable duplication in titles appearing in the Home Reading List, Booklist and the Bulletin of the Virginia Kirkus Service. Booklist recommended 46 per cent of the titles that also were recommended in the Home Reading List during January and February, 1964. If light fiction--mysteries, science fiction and western titles--were excluded, Booklist recommended 68 per cent of the new fiction titles that were included on the Detroit list. A similar percentage, 64 per cent, was found between titles in Booklist and the titles purchased for at least one Detroit branch collection.

The Kirkus Bulletin listed 752 titles during the months of July, August and September, 1964. Of these titles, 45 per cent were included in both Booklist and at least one Detroit branch collection. Approximately 58 per cent of the titles included in the Kirkus Bulletin were also included in Booklist and approximately 65 per cent were included in a branch collection.

The greatest similarity between the Kirkus Bulletin and Booklist was found in non-fiction, while the greatest difference was found in light fiction. Twenty-five per cent of the titles on the Home Reading List accounted for over one-half of the copies purchased for the Detroit collections. Booklist included 56 per cent and the Kirkus Bulletin included 68 per cent of the non-technical titles that were purchsed. Approximately 79 per cent were in one of the selection media; 45 per cent were in both selection media and the Home Reading List.[21]

Although there was duplication of titles in the Home Reading List, the Booklist and the Bulletin of the Virginia Kirkus Service, Shearer found that the titles on the local list differed by more than 15 per cent from those on national lists. Therefore, he accepted his hypothesis--that a local list was useful to meet the needs of a particular city and a particular public library system. He suggested research on the costs of local lists versus individual branch selection and proposed that a system combining both published reviewing media and examination of new books received from publishers might provide a less expensive method of selection than the use of a local list.[22]

Science Collections in Michigan High Schools

Jones and Schmitz investigated science collections in fifty-four Michigan high school libraries during the school years, 1960-62.[23,24] Their studies were based upon an "assumption that quantity and quality of a collection can be measured in terms of numbers of titles per pupil, recency of copyright date, and numbers of titles appearing on a master checklist, as well as that adequacy of the collection can be evaluated in terms of the opinions of librarians and teachers."[25] Since the results of both studies were similar in form, they are shown in a table in Appendix A.

Schools were divided into six groups, by grades and by enrollment. Data were collected through the process of checking a master list of titles, composed from national selection aids, against the schools' collections; questionnaires were completed by librarians and science teachers. Lists of the more frequently held titles were compiled in the three subject areas: biological sciences, physical sciences, and mathematical sciences.

At least three areas of the studies appear applicable to the present research. These are adequacy of collections, aids used in selection, and teacher-librarian communication. Collections were, generally, inadequate when compared with titles in selection aids, both in recency and number. Collections varied widely in the titles that were held. Larger schools had a broader coverage of subject areas, but smaller schools had more volumes per student. Librarians appeared to recognize the weaknesses of their collections; they rated them much lower than did the teachers.

Librarians preferred standard selection aids. Teachers relied primarily upon textbook bibliographies, publishers' exhibits, other teachers' recommendations, and professional education and subject periodicals for their selection of books. Slightly over one-half of the teachers saw themselves as holding considerable responsibility for selection. The rest of the teachers expressed the opinion that they had little or no responsibility for selection.

There appeared to be a need for improved communication between teachers and librarians. Approximately one-half of the teachers failed to inform librarians about curriculum changes. The average number of teachers who indicated that they suggested books for purchase ranged from 60 to 75 per cent.

Summary of Related Research

When the five studies are compared, a pattern of problems, inadequacies, and unknowns emerges. Statistical tests were applied to results in only one of the studies. The four studies built on questionnaires listed selection aids or processes to be checked if used; at least two of the studies, those of Jones and Schmitz, seemed to show a discrepancy between aids used and aids "checked as used."

In elementary schools, a shortage of trained librarians hampered selection. Budgets were inadequate. Librarians and teachers appeared to lack sufficient communication about selection aids, books, and curricula, yet modern educational methods demand more participation by teachers in the selection process.

McCartney, in the California schools, and Shearer, in the Detroit Public Library, found local evaluation committees to be expensive, time-consuming, and possibly a barrier to the most effective selection process, which hopefully involves those who use materials (teachers and branch librarians).

In short, research studies tend to show that (1) use of a wide range of selection aids is limited, (2) there is inadequate involvement of teachers in selection processes, and (3) a better procedure for selection needs to be constructed.

FOOTNOTES FOR CHAPTER II

[1]Hilda Marie McCartney, "The Selection of Instructional Materials for Elementary Schools in California," (unpublished Ed.D. dissertation, University of Southern California, 1960), p.3.

[2]Ibid., p. 136.

[3]Ibid., p. 130.

[4]Ibid., p. 133, 136.

[5]Ibid., p. 138, 140.

[6]Ibid., p. 143.

[7]Ibid., p. 261.

[8]Ralph William Sheriff, "A Study of the Level of Quality Used in Selecting Library Books in Elementary Schools in Pennsylvania" (unpublished Ed.D. dissertation, Pennsylvania State University, 1965).

[9]Ibid., pp. 19-20.

[10]Ibid., p. 22.

[11]Ibid., p. 29.

[12]Ibid., p. 31.

[13]Ibid., p. 33.

[14]Ibid., p. 32.

[15]Ibid., p. 34.

[16]Ibid., p. 30.

[17]Kenneth Decker Shearer, "A Comparison of the Contents of Book Selection Lists Produced Nationally and Locally for Public Library Use," (unpublished Ph.D. dissertation, Rutgers University, 1969).

[18]Ibid., p. 21.

[19]Ibid., p. 10.

[20]Ibid., p. 31-32.

[21]Ibid., pp. ii-iv, 47-61.

[22]Ibid., pp. 66, 68-69.

[23]Norma Louise Jones, "A Study of the Library Book Collections in the Biological Sciences in Fifty-Four Michigan High Schools Accredited by the North Central Association of Colleges and Secondary Schools," (unpublished Ph.D. dissertation, University of Michigan, 1965).

[24]Eugenia Evangeline Schmitz, "A Study of the Library Book Collections in Mathematics and the Physical Sciences in Fifty-Four Michigan High Schools Accredited by the North Central Association of Colleges and Secondary Schools," (unpublished Ph.D. dissertation, University of Michigan, 1966).

[25]Ibid., p. 36.

CHAPTER III

PROCEDURES OF INVESTIGATION

The previous chapters have introduced the problems which currently beset book selection practices for elementary school libraries, have stated the scope of the present study, i.e., an investigation of book selection activities and collections in elementary school libraries in two large Southwestern school systems, and have reviewed relevant research studies. This chapter will include a discussion of (1) the sub-hypotheses to test the major hypothesis, (2) definitions to be used in the study, (3) the selection of school districts and schools within the districts to be studied, (4) instruments constructed to collect data, (5) procedures used in data collection, and (6) methods of analysis.

Sub-Hypotheses Used to Test Major Hypothesis

The case studies of selection procedures in the two school districts were designed to test, by the use of six sub-hypotheses, the major hypothesis that

> as selection procedures for elementary school libraries become less centralized and standardized, the quality of collections improve because school librarians and teachers are more actively involved in selection.

As explained in Chapter I, in the section concerning assumptions, the major hypothesis was based upon the assumptions that students' reading abilities, socio-economic backgrounds and interests vary from school to school within school systems; that adequate library collections should reflect these needs and interests; and that selection procedures, personnel involved in selection,

and bibliographic aids used in selection affect resulting collections.

Three sub-hypotheses were designed to be tested in the areas of selection criteria, use of selection aids, and selection procedures:

1. Librarians and teachers who select independently are more aware of selection criteria for science books than are those personnel who use a local buying list.

2. Librarians and teachers who select independently consult more selection aids than do those personnel who use a local buying list.

3. Librarians and teachers who select independently perform more selection activities than do those personnel who use a local buying list.

Three sub-hypotheses were designed to be tested in the area of science book collections:

1. Elementary school libraries with selection by teachers and librarians who do not use a local buying list have better collections in astronomy and earth science, when measured against a list of books from standard selection aids, than do those elementary school libraries for which books are selected from local buying lists.

2. Astronomy and earth science collections selected by librarians and teachers who do not use a local buying list will differ more to reflect the curricular interests and reading abilities of their own students than will collections selected by librarians and teachers who use a local buying list.

3. Elementary school library collections, with books selected by teachers and librarians who do not use a local buying list, will contain more recently published books and they will be available for circulation earlier than in those libraries where books are chosen from a local buying list.

There were several reasons for selecting books in astronomy and earth science for study. Science, and these two disciplines in particular, were chosen for study because of (1) the wealth of material being published about the subjects, (2) the importance of correct concepts and information in both areas, (3) the rapidity at which material might become outdated, and (4) the similarity of subject coverage by textbooks in science for both cities.

And, there were as obvious reasons for selecting the fourth grade as the focus of the study. Fourth grade textbooks in both school systems included units on the universe and the earth. In addition, a library collection for an "average" fourth grade class probably would include books for reading levels from kindergarten through grade eight. To have chosen a more advanced grade would have made necessary a much wider range of selection bibliographies.

Definitions Used in the Study

The following terms need to be defined for use during this study:

1. selection process - The cycle of events occuring from the time a need or interest arises for a particular subject or type (poetry, family story, bibliography) of book until that book is available for circulation in a library.

2. trade books - "Books not used primarily for direct instructional purposes, but for enlightenment, information, pleasure, etc.; in other words, books published for sale to the general public through the trade."[1]

3. astronomy books - Titles dealing with the science of the universe, including the earth as a planet; of time; of the calendar and the seasons; and of navigation.

4. earth science books - Titles dealing with the study of the earth: geology, oceanography, meteorology and weather, rocks and minerals, and ecology.

5. school system or district - Administrative organization of all public schools supported by and within a legally constituted municipality.

6. school - An individual school district unit, i.e., elementary school, middle school, junior high school, or high school.

7. librarian - A member of the professional school staff, certified by the state as a "librarian," i.e., one who holds at least a bachelor's degree and eighteen hours of library science courses, and who is in charge of one school library on a full-time basis.

8. science teacher - A member of the professional school staff who is responsible for the instruction of at least one section of fourth grade science.

9. special selector - Any one of the school staff involved in the selection process of books for elementary school libraries other than a school librarian or science teacher. Includes both library and science consultants.

10. selection criteria - Standards for judgment of the quality or usefulness of books to be added to elementary school libraries.

11. selection aid - Bibliographies, journals containing evaluative book reviews or annotations, and lists used in deciding titles to be added to elementary school library collections.

12. selection activity - Any of various measures taken in the process to choose books for elementary school libraries, e.g., meeting with a committee to review new books, using selection aids, visiting local bookstores to examine new books, etc.

Selection of Schools to Be Studied

Since the idea for the investigation grew out of talks by two library supervisors from large Southwestern school districts, it was a logical second step to request permission to visit schools in these two cities. The original plan was to locate two smaller school districts in which the study could be replicated. Unfortunately, no smaller district employing full-time certified librarians in elementary schools using the system-wide buying list could be found in the Southwest.

First, a form was devised to obtain district data. This district data form, a copy of which is in Appendix B, sought basic information such as the name of the school district and the elementary library services coordinator or supervisor, the number of certified full-time elementary school librarians, and per pupil book budget for the school year, 1968-69. Additional information was requested about science textbooks and fourth grade science teachers, the procedure for selection of science books for elementary school libraries, the frequency of book orders, and processing routines. Data obtained from this instrument is given in Chapter IV.

After a decision was made to study schools from two large school districts in the Southwest, the individual schools within each district had to be chosen.

In School District I, out of a total of 120 elementary school librarians, 100 were certified by the state. To be certified as librarians by the state education agency, employees must have completed eighteen hours of library science courses from an accredited college or university and have received a bachelor's degree. Eighty-five of these certified librarians were working in the same school during the two years prior to the study and would remain as librarians in their respective schools for the fall semester, 1969, when the data were to be collected.

A city map of school district boundaries was superimposed upon a 1960 U.S. Census tract map to divide the schools into three types:

1. Low socio-economic level (schools eligible for Title I funds)[2]
2. Average socio-economic level (Not eligible for Title I funds -$6,999 median income)
3. High socio-economic level ($7,000 and above median income)

Of these eighty-five schools, the School Library Consultant suggested thirty-seven schools in which the librarian and principal would be especially cooperative. From these thirty-seven schools, arranged alphabetically by name within the three socio-economic levels, six schools were selected by use of a table of random numbers, two at each level to be involved in the study.[3]

Within School District II, which requires that elementary school librarians and teachers select library books, to be purchased with system funds, from a system-wide approved buying list, forty-four elementary schools had full-time certified librarians (only schools with 1000 or more students have full-time librarians). The other 129 elementary schools had certified librarians who served more than one school. Twenty-one schools had librarians

who were full-time in one school, were certified, and had been employed in their positions the previous two years. These twenty-one schools were divided into three socio-economic levels, grouped according to the 1960 U.S. Census of median family income, and six schools were chosen for study by use of a table of random numbers.[4] As in School District I, the lowest socio-economic level schools were selected from among the Title I schools. Six schools, two at each level, were chosen to be investigated during the Fall of 1969.

Instruments Constructed to Collect Data

To test the six sub-hypotheses, several instruments were designed to collect data. These instruments are discussed on the following pages and copies of forms are included in Appendix B.

Structured Interview Schedules

An instrument, Schedule A, was developed to be used in structured interviews with principals of the twelve schools. This instrument was designed to collect school history and current data as well as information about fourth grade students, the school library, public library facilities, and community demographic information.

Three additional structured interview schedules were developed for use during taped interviews with (1) individual school librarians, (2) fourth grade science teachers, and (3) special selectors.

Schedule B, the instrument to be completed during the interview with each librarian, was more detailed than the other forms. First, it was designed to collect data about the librarian: number of college hours in library science and science, years of service as an elementary school

librarian, and years of service in her present assignment. Second, it explored the areas of book selection policy, involvement of the librarian in curriculum revision and unit planning, and actual routines for the selection of science books for the library. The third area of the schedule was concerned with selection aids and criteria used by the librarian to select science books. Acquisition procedures were explored in the fourth section, and a final section contained a checklist of activities in which the librarian might have participated during the previous school year.

Schedule C, prepared for use with all fourth grade science teachers, included a section about the teacher: educational data, length of service as an elementary teacher, and present school assignment. A second area contained questions about science curriculum units, reading and subject needs and interests of students, and participation of the school librarian in curriculum and unit planning. The third section explored the teacher's role in the selection of science books for the school library, including the titles of selection aids and selection criteria used, and asked for suggestions to improve the selection process. A final question inquired about the teacher's use of the public library for science books.

Schedule D was prepared for use with special selectors--all those persons, other than school librarians or science teachers, who participated in the selection of science books for elementary school libraries. This schedule contained two divisions: (1) questions concerning educational and previous library or teaching experience, and (2) questions about selection activities, use of selection aids, and selection criteria for science books.

Questionnaire Checklist

A questionnaire in the form of a checklist, Schedule E, was designed to be completed by all librarians, fourth grade science teachers, and special selectors who were interviewed. This schedule included four divisions: educational and position information; a checklist of criteria for evaluating science books to be ranked in importance; a checklist of basic and current selection aids to be ranked by frequency of use; and a checklist of selection activities to be ranked in order of usefulness in the selection process. An open-ended question gave respondents an opportunity to list activities not included on the checklist.

Items to be included in Schedule E and in the list of activities performed by librarians (included in the librarians' structured interview schedule) were drawn from several sources. The nineteen items in the checklist "criteria for evaluating library science books" were compiled primarily from seventeen sources.[5-21]

These items, arranged randomly, were:

1. Reputation of publisher
2. Opaqueness of paper
3. Logical organization of concepts
4. Binding
5. Recency of information
6. Safe experiments and activities
7. Authority of editor or consultant
8. Use in curriculum
9. Informative illustrations which amplify text
10. Clear, simple writing
11. Specific references in text to illustrations
12. Subject background of author
13. Page layout
14. Index and table of contents
15. Accurate factual information
16. Glossary, pronunciation key, and bibliography of further readings are included
17. Size of type

18. Reviews in selection aids
19. Text and illustrations on same reading level

Questionnaire respondents were requested to rank the criteria into three divisions:

1. those items considered most important
2. those items considered second in importance
3. those items considered least important in evaluating science books for library collections.

A list of selection aids comprised the second section of the questionnaire. The list was divided into two parts: (1) books and pamphlets, and (2) periodicals. Twenty-four titles were included in Part I. They are:

AAAS Science Book List for Children. 1963

ALA. Basic Book Collection for Elementary Grades. 1960

ACEI. Bibliography of Books for Children. 1965

Bowker. Best Books for Children. annual

Bowker. Growing Up With Books

Bowker. Growing Up With Paperbacks

Bowker. Growing Up With Science Books

Books for Children, 1960-65 and supplements (Booklist)

Gaver. Elementary School Library Collection, Phases 1-2-3. First, Second, Third and Fourth editions and supplements.

Good Books for Children, 1950-65 (University of Chicago Center for Children's Books)

Haman and Eakin. Library Materials for Elementary Science. 1964

Hodges, Elizabeth D. ed. Books for Elementary School Libraries. 1969 (Replaces ALA Basic Book Collection for Elementary Grades.)

Junior High School Library Catalog. 1965 and supplements

Kirkus Service

Mallinson and Mallinson. A Bibliography of Reference Books for Elementary Science. 1962

NCTE. Adventuring With Books. 1966

NCTE. Your Reading; A Book List for Junior High Schools. 1966

Orsini, Lillian. "Suggested List of Reference Tools for Children in Grades 1-8," RQ, VII, No. 2 (Winter, 1967) pp. 79-81.

Spache, George. Good Reading For Poor Readers. 1968

U.S. Library of Congress. Children's Books. 1964- annual

U.S. National Aeronautics and Space Administration. Aerospace Bibliography. 1968

U.S. Office of Economic Opportunity. We Read. 1966

Winters, Anton. Science Books for Fun. 1966

Under Part II, twenty-two titles of periodicals that contain reviews of recently published science books for children were listed:

Appraisal; Children's Science Books

Book World

Booklist and Subscription Books Bulletin

Bulletin of the Center for Children's Books

Childhood Education

Elementary English

Elementary Science

Grade Teacher

Horn Book Magazine

Instructor

Natural History

N.Y. Times Book Review

Saturday Review

School Library Journal

School Science and Mathematics

Science and Children

Science Books (AAAS)

Science News

Scientific American

Sky and Telescope

Top of the News

Young Readers' Review

Respondents were asked to check each selection as:

1. Those considered basic
2. Those always used
3. Those used at least once this year
4. Those never used.

The list of selection aids was compiled from several sources[22-25] and updated by the investigator: e.g., Books for Elementary School Libraries. was published early in 1969.

Two hypothetical titles were included to check the accuracy of the selectors' rating of selection aids. Winters' Science Books for Fun and Elementary Science are non-existent titles.

The final section of the questionnaire listed twelve selection activities:

1. Examining Books on Exhibit
2. Reviewing publishers' advance copies for subject committees of teachers and librarians
3. Attending and participating in evaluation meetings with public librarians in the community
4. Reading reviews of new books in library selection aids and selecting books to be ordered
5. Meeting with other teachers and/or librarians in your building to choose books from several new titles evaluated by other teachers or librarians

6. Checking textbook bibliographies against library holdings
7. Checking publishers' catalogs for new books and against library holdings
8. Examining publishers' exhibits
9. Visiting local bookstores
10. Checking a system-wide approved list
11. Checking bibliographies prepared by subject consultants against library holdings
12. Visiting local public libraries to examine books

The twelve selection activities were based upon items included in several sources[26] and adapted for use with the selection of science books.

Respondents were asked to rank the activities as:

1. Those most useful.
2. Those found useful.
3. Those used at least once during the past year.
4. Those never used.

School Librarians' Activities Checklist

The activities checklist included in the school librarians' structured interview contained fifteen items. These items were based upon activities suggested by Gaver,[27] upon activities performed by the investigator as a school librarian, and upon suggested activities in a text for elementary school librarians.[28] Librarians were asked to check the activities in which they had participated during the school year:

1. Serve on science curriculum committees
2. Observe science classes
3. Help teachers plan units in science
4. Prepare bibliographies of science books for teachers
5. Prepare bibliographies of science books for students
6. Select science books from the public library for use in science classes
7. Maintain file of community resources and people in areas of the sciences
8. Have displays of class science projects in the library
9. Organize and house audio-visual science materials in library, including realia

10. Present book talks about new science books to students
11. Serve on teams teaching science
12. Prepare exhibits of new science books in library
13. Prepare exhibits of new science books in classrooms
14. Use science books in teaching use of the card catalog, information file, etc.
15. Read aloud to students excerpts from new science books

Checklist of Titles

The final form constructed for use in data collection was a list of 265 books (261 titles) in the astronomy and earth sciences (Dewey Decimal Classification divisions 520-529, 549, and 550-559), composed of entries in the Children's Catalog, 1966 edition and its annual supplements for 1967, 1968, and 1969; Phase I books of the Elementary School Library Collection, 1968 edition and its supplement; and titles included in Books for Elementary School Libraries. It was thought that, as a minimum core collection, these books should be included in elementary school library collections. A table in Appendix B lists the titles, and shows in which aids they were included.

Twenty-seven of the titles were listed in both the Children's Catalog series and the Elementary School Library Collection. Seven titles were listed in both Gaver's and Hodge's works, and thirty-three titles were included in both the Children's Catalog series and Books for Elementary School Libraries. There were twenty-nine titles included in all three selection aids. They are listed in Table 1. In all, 37 per cent of the 261 titles were listed in more than one of the three aids.

Ninety-two titles were in the subject areas given the Dewey Decimal Classification numbers 520-529 (astronomy), and 169 titles were classified either in the numbers 549 or the 550's (earth sciences).

Table 1

Titles Included in All Three Selection Aids[a]

Author	Title	Publisher, Date
Ames, Gerald and Wyler, Rose	The Earth's Story	Creative Ed. Society, 1962
Bell, Thelma Harrington	Snow	Viking, 1960
Bell, Thelma Harrington	Thunderstorm	Viking, 1960
Bendick, Jeanne	The First Book of Time	Watts, 1963
Bendick, Jeanne	The Shape of the Earth	Rand, McNally, 1965
Fenton, Carroll Lane and Fenton, Mildred A.	Worlds in the Sky Rev. ed.	Day, 1963
Gallant, Roy A.	Exploring the Planets	Doubleday, 1955; 1967[b]
Gallant, Roy A.	Exploring the Weather	Garden City, 1957
Goetz, Delia	Deserts	Morrow, 1956
Goetz, Delia	Islands of the Ocean	Morrow, 1964
Goetz, Delia	Mountains	Morrow, 1962
Goetz, Delia	Tropical Rain Forests	Morrow, 1957
Irving, Robert (pseud. of Irving Adler)	Hurricanes and Twisters	Knopf, 1955
Knight, David C.	The First Book of Air	Watts, 1961
Knight, David C.	The First Book of Deserts	Watts, 1964
Lauber, Patricia	All About the Planet Earth	Random House, 1962
Loomis, Frederick Brewster	Field Book of Common Rocks and Minerals Rev. ed.	Putnam, 1948
Pond, Alonzo	Deserts: Silent Lands of the World	Norton, 1965
Ravielli, Anthony	The World is Round	Viking, 1963
Rey, H. A.	Find the Constellations	Houghton, 1954; 1966[c]
Riedman, Sarah R.	Water for People Rev. ed.	Abelard, 1960
Schneider, Herman	Everyday Weather and How it Works Rev. ed.	McGraw-Hill, 1961
Selsam, Millicent	Birth of an Island	Harper, 1959
Zim, Herbert S.	Comets	Morrow, 1959
Zim, Herbert S.	Lightning and Thunder	Morrow, 1952

Table 1 (continued)

Author	Title		Publisher, Date
Zim, Herbert S. and Baker, Robert G.	Stars	Rev. ed.	Golden Press, 1956
Zim, Herbert S.	The Sun		Morrow, 1961
Zim, Herbert S.	The Universe		Morrow, 1961

[a]Titles included in the 1966 edition of Children's Catalog, 1968 edition of the Elementary School Library Collection and Books for Elementary School Libraries.

[b]Hodges lists the 1955 edition, while Gaver and the Children's Catalog list the 1967 edition.

[c]Gaver lists the 1966 edition, while the Children's Catalog and Hodges list the 1954 edition.

Procedures Used in Data Collection

In the spring of 1969, twelve schools, six from each of the two systems, were selected for study. The names of these schools were submitted for clearance to the school system library supervisors and, in one system, the schools to be visited were notified by the library supervisor.

Then, in September, 1969, the investigator visited each school, talked with principals, and made appointments to visit the schools for interviews. During October, November, and December, 1969, and January, 1970, twenty-eight days were spent by the investigator in the two cities--two or three days in each of the twelve schools.

Principals were interviewed in each school. Interviews with librarians were tape-recorded and the Checklist was compared against the holdings and the current orders of the twelve schools. In addition, all titles classified in the 520's or the 550's were listed, so that the total holdings of the libraries in astronomy and earth sciences were available for future analysis. Acquisition records--from shelf-lists, acquisition books, and shipping invoices --for the preceding five years were also recorded.

Thirteen science teachers were interviewed in District I; thrity-three teachers were interviewed in District II. (The discrepancy in numbers was caused by variations in the responsibility for fourth grade science; in some schools all sections were taught by one teacher, while in other schools a section of science was taught by each homeroom teacher or another teacher.)

Two science teachers in District I were not interviewed. One had only been in the position for three days and was on a temporary assignment; and a second teacher, who taught only one section of science in addition to

physical education classes, did not wish to be interviewed. In District II, one teacher refused to be interviewed.

Questionnaire forms were distributed to librarians and teachers when their interviews were completed. Two questionnaires were not returned from District I teachers, and three questionnaires were not returned from District II teachers. Ninety-four per cent of the teachers were interviewed and 86 per cent of the questionnaires were completed and returned.

After the interviews were completed in the schools, the science consultants and system supervisory library personnel were interviewed and completed questionnaires. Personnel involved in centralized processing were interviewed, and system acquisition routines were observed.

Results of reading tests, either the California Achievement Tests or the Iowa Tests of Basic Skills, taken in the spring of 1969 by students who would be in the fourth grade in the fall, were acquired from administrative records. Public library statistics--number of juvenile science books in branch collections, and distances of branches from each of the twelve schools--were requested and obtained from the public library systems of the two cities.

Tradebook titles in science textbooks and science curriculum bulletin bibliographies for the fourth grade in the two school systems were listed for comparison with existing collections.

Finally, all titles of trade books, either on the Checklist or owned by any of the twelve libraries and classified in the 520's, 549 and the 550's, were assigned reading levels (545 titles in all). All titles were checked in Book Review Digest and reviews from book reviewing media were noted.[32] The symbols of 2 (Primary), 4 (Intermediate) or 6 (Advanced) were assigned to each title, based on reviews. The symbol "2" designated books that could

be read easily by children reading on second grade level. The symbol "4" designated books that could be read easily by children reading on fourth grade level. The symbol "6" designated books that could be read easily by children reading on sixth grade level.

Methods of Analysis

Basically, two types of analyses were attempted. First, because the case study method was used, involving only twelve schools in two districts, no highly significant statistical results were expected. Therefore, after the data presentation for each of the six sub-hypotheses, a discussion of the trends shown in the data and of the relationships of these trends is given. Second, four test statistics, in addition to tables, graphs, and lists, are used to display the data variations, at pre-determined significance levels. These tests, with formuli or references to more detailed explanations, are presented in the following paragraphs.

Before any tests were computed, data concerning the books in the astronomy and earth science collections of the twelve schools, as well as the titles prepared for the checklist, were put onto punched cards for computer manipulation. Information obtained from the structured interviews pertaining to selection criteria and selection aids, in addition to the data acquired about selection activities and librarians' activities from the questionnaires, were also coded onto punched cards.

Then, all books, either in the collections or on the checklist, were listed on a computer printout, arranged by author. Next, they were resorted, and listed by individual school. On each of the printouts, either by individual school, or on the combined list, the following data were given

for each title: last name of author, short title, year of publication, number of schools owning the title, Dewey Decimal Classification number, reading level, and number of checklist aids listing the title.

Statistical tests were applied to the data concerning the selection criteria, selection aids, and selection activities. First, the various data were ranked by district. Then, for each group of data, the correlation between the series of ranks was computed using Spearman's rank order coefficient formula.[33]

$$r_s = 1 - \frac{6\Sigma d^2}{N(N^2-1)}$$

Next, whenever necessary or appropriate, data from these rankings were used in t tests to test the hypothesis that a significant correlation, at the 5 per cent level, did exist between the districts. The formula

$$t = r_s\sqrt{\frac{N-2}{1-r_s^2}}$$

was used.[34]

The third statistical test to be used was a t test on difference of means, at the 5 per cent level, to test the hypothesis that the means of the two districts were equal, against the alternate hypothesis that the mean of District I was significantly greater than the mean of District II.[35]

$$t_{(z)} = \frac{(\bar{x}_1 - \bar{x}_2) - (u_1 - u_2)}{\sqrt{\frac{(n_1-1)s_1^2 + (n_2-1)s_2^2(1/n_1 + 1/n_2)}{n_1 + n_2 - 2}}}$$

The investigator also computed this test to determine differences on the time spent in selection activities in the two districts.

Next, tests were computed on the data concerning the collections. First, analysis of variance was computed on the data concerning date of publication, reading level of titles in the collections, and titles in the collections on the Quality Checklist.[36] The significance level for these tests was set at 5 per cent. The two factors computed were district and economic levels.

The Spearman rank order correlation between the reading levels of the books and the reading scores of the fourth grade students was computed for all twelve schools, for the two districts. A t statistic was used to compute, at the 5 per cent level, a test of the significance of the correlation between books and student reading abilities.

Finally, tests concerning the significance of the difference of means for the two groups of schools were computed on the time elapsing from date of orders until the books were available for circulation in the libraries, and the publication dates of a sample of books in the 1968-69 orders from the schools.

Summary

This study reports an investigation of selection procedures and an analysis of book collections in the subject areas of astronomy and earth science in twelve elementary school libraries. Six schools were from District I in which selection of books was by teachers and librarians from library selection aids, professional education journals, and publishers' exhibits and catalogs. In District II, teachers and librarians were asked to select books for the annual order from a local buying list and accompanying exhibit.

which was on display at the district administration building for a month each year.

Six measures were designed to test the hypothesis that better library collections are built by teachers and librarians who have freedom to select from a wide range of bibliographies, exhibits, and professional journals, than by personnel who are limited to selection from a local buying list, because the former are more involved in the selection process.

Data were collected by two methods. First, taped interviews and questionnaires were used to compile data concerning selection criteria, selection aids, and selection activities of the sixty-five school personnel concerned with selection in the twelve schools.

Next, additional data were compiled concerning the quality and recency of the astronomy and earth science collections in the twelve schools. Checklists consisting of (1) 265 books recommended in three standard selection aids and (2) titles included in science curriculum textbooks and guides were used in the measures of the collections.

Finally, these data were analyzed and conclusions were advanced.

FOOTNOTES FOR CHAPTER III

[1]Mary Virginia Gaver, Effectiveness of Centralized Library Service in Elementary Schools (Phase I) (New Brunswick, New Jersey: Graduate School of Library Service, Rutgers - The State University, 1960), p. 52.

[2]PL 89-10, The Elementary and Secondary School Act, established criteria for aid to schools with concentrations of students whose families had yearly incomes of less than $2,000.

[3]Herbert Arkin and Raymond R. Colton, Tables for Statisticians, 2d ed.; (New York: Barnes and Noble, 1963), p. 158, quoting M. G. Kendall and B. B. Smith, Tables of Random Sampling Numbers Tracts for Computers XXIV (London: Cambridge University Press, 1939), pp. 2-5.

[4]Ibid.

[5]May Hill Arbuthnot, Children and Books, 3d. ed.; (Chicago: Scott, Foresman and Co., 1964), pp. 564-566; 579-581.

[6]Jane Davies, "Evaluating Books on Science," Top of the News, XVII (March, 1961), 48-52.

[7]Hilary J. Deason, "Evaluating Science Books for Children," Science and Children, III (November, 1965), 9-11.

[8]Mary K. Eakin, ed. Good Books for Children, 3d. ed.; (Chicago: University of Chicago Press, 1966), p. xii.

[9]Carolyn Field, "Selecting Children's Books," Library Journal LXXXVII (September 15, 1962), 3118-3120.

[10]Gaver, Effectiveness of Centralized Library Service in Elementary Schools, pp. A-xvii-xviii.

[11]Charlotte S. Huck and Doris Young Khun, Children's Literature in the Elementary School, 2d. ed.; (New York: Holt, 1968), pp. 445-506.

[12]Jean Karl, "A Children's Editor Looks at Excellence in Children's Literature," Horn Book, XLIV (February, 1967), 34.

[13]Donald MacRae and Elizabeth MacRae, "Astronomy Books for Children," Top of the News, XVIII (May, 1962), 62-69.

[14]Harry Milgrom, "Science Books: 33 Keys to Evaluation," Science and Children, I (March, 1964), 16.

[15]Lloyd Motz and Minne R. Motz, "Space Books - Which Ones and Why," Top of the News, XVII (May, 1961), 7-15.

[16]Millicent E. Selsam, "Writing About Science For Children," Library Quarterly, XXXVII (January, 1967), pp. 96-99.

[17]Lillian H. Smith, The Unreluctant Years (Chicago: American Librarian Association, 1953), p. 181.

[18]Zena Sutherland, "Evaluating Books for Children," Illinois Libraries, XLIII (September, 1961), 524-528.

[19]Virginia Tashjian, "Problems in the Evaluation of Juvenile Science Books," Appraisal, I, No. 2 (Spring, 1968), 1.

[20]Ruth Hill Viguers, Margin for Surprise (New York: Little, Brown and Co., 1964), p. 10.

[21]Herbert Wong, "Selecting Science Books for the Library," The Instructor, LXXVI (November, 1966), 81-83, 85.

[22]Children's Book Council, Inc., Aids To Choosing Books for Children. (New York: 1966).

[23]Elizabeth D. Hodges and Frances Fleming, "Selecting Materials for Children and Young Adults," NEA Journal, LIV (January, 1965), 69-70, 76, 78, 80-81.

[24]Milbrey L. Jones, Book Selection Aids for Children and Teachers in Elementary and Secondary Schools (Washington, D.C.: U.S. Government Printing Office, 1966).

[25]Sarah Law Kennerly, "Aids for Selecting and Evaluating Children's Books: A Selected List," (unpublished list, North Texas State University, 1968).

[26]The investigator found useful the "Questionnaire Concerning the Selection of Library Books," (McCartney, "The Selection of Instructional

Materials for Elementary Schools in California," 1960, p. 472-479), the "Accessibility Rating Scale, II. Selection Procedure" (Gaver, Effectiveness of Centralized Library Service in Elementary Schools, 1960, p. H-iii) and the activities listed in Wofford (Azile Wofford, Book Selection for School Libraries (New York: H. W. Wilson, 1960), pp. 21-48.

[27]Gaver, Effectiveness of Centralized Library Service in Elementary Schools, Phase I, 1960, pp. F v-vi.

[28]Jean Lowrie, Elementary School Libraries (New York: The Scarecrow Press, 1961), pp. 23-56.

[29]Children's Catalog, 1966; Supplement, 1967; Supplement, 1968; Supplement, 1969.

[30]Mary V. Gaver, The Elementary School Library Collection, 1968; Supplement, 1969.

[31]Elizabeth D. Hodges, Books for Elementary School Libraries, 1969.

[32]Twenty-three titles were not included for analysis, although they were held in at least one of the twelve libraries. They were either fiction or should have been included in other subject areas.

[33]Helen M. Walker and Joseph Lev, Elementary Statistical Methods, Rev. ed. (New York: Holt, Rinehart and Winston, 1958), p. 159.

[34]Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences (New York: McGraw, Hill and Co., 1958), p. 212.

[35]David V. Huntsberger, Elements of Statistical Inference, (Boston: Allyn and Bacon, 1961), pp. 155-158.

[36]W. J. Dixon, ed., "BMD: Biomedical Computer Programs," University of California, Publications in Automatic Computation, No. 2 (Berkeley: University of California Press, 1967), pp. 495-510.

CHAPTER IV

CITIES, COMMUNITIES, AND SCHOOLS

One of the basic assumptions underlying this study is that students living in different cities and attending different schools in a city will vary in their reading abilities, needs, and interests. To substantiate this assumption and as a basis for study of library collections, this chapter will include descriptions of (1) the two cities in which are located the schools used in this study, (2) the organizational pattern for elementary school libraries within these school systems, (3) the science curriculum for the elementary schools studied, (4) the communities which surround the twelve schools investigated, and (5) the schools themselves. Analyses of selection procedures and library collections are presented in the subsequent chapters.

Cities, and school districts, are identified by Roman numerals. City I has no local buying list; City II uses a local buying list for selection of books for elementary school libraries. Schools within the two cities are identified by Arabic numerals 1 through 12. Schools numbered 1 through 6 are from City I; schools numbered 7 through 12 are from City II.

The Cities

City I

Founded in 1841 in the heart of a rich agricultural section, this city of nearly one million inhabitants has served as a trading center and a cotton market for the surrounding area. As it has grown, its base for wealth has become diversified: oil fields located to its east in the 1930's, an aviation

industry during World War II, and a growing electronics industry in the years following the war have added impetus to an economy which also includes the financial center of the Southwest and a growing general manufacturing complex.

The city serves as the cultural and educational center for its geographic area, with nearly a score of universities, a growing junior college system, and numerous cultural organizations within a forty-mile radius. Patronage of the fine arts is respected. Its public library system contains over one million volumes.

The population of the city has become increasingly cosmopolitan during the years since World War II. Industry, education, and a mild climate have attracted people from over the world. Approximately one-fourth of the population of the city is Negro. Most of the minority members of the community, Negro and Mexican American, live on the outskirts of the compact downtown area in the decaying sections that were the homes of the wealthier citizens in the early part of the century. Mushrooming "bedroom communities" and the outlying additions of the city house the more affluent population.

City II

In the midst of a great oilfield, this city probably has the greatest concentration of petro-chemical and metal industries in the nation. It grew rapidly after 1914 when a ship canal was built to connect it with the ocean. Today, it ranks as one of the largest ports in the United States. It is a major medical center and a trading center for the agricultural, cattle, and timber producers who surround it. Its current population of over one million residents makes it the largest city in the state.

Like City I, it is a leading educational and cultural center for its geographic area with at least seven senior colleges within its boundaries.

Its position as a major seaport and trading center has also brought many people from other parts of the nation and world to it. Approximately one-fourth of its population is Negro. They live in sections adjacent to the downtown area and in an area in the far south of the city. The more affluent of the population live in new suburbs and high-income independent communities.

District Organizational Patterns for Elementary School Libraries

District I

The organization for elementary school libraries in District I is not highly structured. The present Director of Instructional Materials assumed the position of Consultant for Library Services in the early 1950's. Previous assignments had included positions on the District professional staff as a teacher, an elementary school librarian, and as the first Library Consultant for the state education agency. As it had been a district policy since the 1930's to hire librarians for elementary schools as well as for junior and senior high schools, there were both personnel designated as librarians and centralized collections in elementary schools when the first Consultant in Library Services assumed her position. She consolidated library book orders, selected collections for the numerous new schools, and offered advice to new and experienced librarians in the system through curriculum guides, consultation, and group meetings.

The position of librarian in many elementary schools in this District often included the assignment of teaching duties and homeroom responsibilities. Because of a fixed schedule of classes, only the higher grades were given weekly assignments for the library. Teachers of lower grades usually took

collections of books to their classrooms. The trend toward a media center concept, instead of a teacher-librarian philosophy, is evident in the establishment of "primary libraries" in several schools. These libraries, staffed with full-time librarians, serve primary grade students and teachers.

Audio-visual services and materials for the District were in a completely separate department until the summer of 1970, when all instructional materials' services were united under the former Consultant for Library Services.

No centralized processing or cataloging had been performed for the District's libraries until 1965. At that time, a center was established, under the supervision of the Consultant for Library Services, to list and partially process materials purchased with federal funds under Titles I and II of the Elementary and Secondary Education Act of 1965 and to process, in summers, core library collections of books for new schools.

District II

The elementary school libraries are more closely supervised in District II than in District I. This is due, possibly, to the fact that the early libraries, begun by principals and parent organizations, did not receive district aid for books until 1949, and not until 1960 were there central collections in all elementary schools. In 1969, only forty-four of the 173 elementary school libraries had full-time librarians; ninety librarians served 173 schools. Of these, fifteen were schools receiving Title I funds, where the librarian's salary was paid with federal funds.

On the central staff, however, there were four full-time professional personnel, backed by nearly a dozen clerks, who devoted all or part of their time to elementary school libraries. The Director of Instructional Materials

Services, responsible for both print and non-print services in the District, served from 1937 until 1949 as a part-time junior high school librarian and also as the administrator of the District's junior high libraries: compiling book orders, formulating policies, etc. In 1949, her duties were enlarged. She assumed the position of Supervisor of School Libraries, a post created to develop a program at the elementary level as well as to supervise and coordinate all library services.

In 1961, library services and audio-visual services were combined into a single Department of Instructional Materials Services, and the present director moved into the administrative position from her supervisory capacity. At that time, two additional staff members were added: a Supervisor of Library Services, and an Assistant Director of Audio-Visual Education.

The fourth member of the professional staff has the title of Librarian of the Elementary Library Processing Center. She is responsible (1) for the preparation of the system's annual buying list and exhibit, including evaluation by librarians and teachers of the titles included on the list; (2) for the placing of orders and the complete processing of library books purchased with district funds; and (3) for the cataloging of library books purchased with individual school funds. Her position grew out of the creation in the late 'thirties of two centers to serve as storage and dissemination points for supplementary readers and reference textbooks for elementary schools. In the early 'fifties, one of the centers began to serve as a processing center for elementary school library books, and, in 1961, the name of the center was changed to conform to the expanded duties. The other center, no longer needed to store and disseminate supplementary books, was closed.

Fourth Grade Science Curriculum

The organization for the teaching of fourth grade science, in contrast to the library programs, was similar in the two districts. Both systems had a consultant or supervisor for elementary school science who participated in the preparation of curriculum guides and resource units, who aided instructors in preparation for the teaching of science, and who were active in the selection of science books for elementary school libraries.

Under Title III of the Elementary and Secondary Education Act, District II established a science education resources center. In the elementary division of the center, staff personnel prepared teaching units on embryology, oceanography, space, computer science, and microbiology. In-service programs designed to improve science teaching in the elementary schools for these and other units were conducted during summers and on weekends. In some instances, bibliographies of media were available for loan from the center. Several of the fourth grade teachers interviewed in the schools had attended in-service workshops at this training facility.

Basic textbook series for grade four also were similar in the two districts. Both series introduced concepts; applied the scientific method by including experiments, projects, and questions; and contained identification and pronunciation of scientific terms.

District I used Harper's Today's Basic Science series as basal textbooks for kindergarten through grade eight. The textbook for grade four, The Scientist and His Method, introduced the concepts inherent in the hypothesis through exercises.[1] Annotated bibliographies were given at the end of units for students who wished to read further on a subject. The entire series was built around nine units: "air, weather, aviation; time, space, earth; matter, energy, life."[2]

District II used the Laidlaw Science Series as basal textbooks for grades one through six. The series was planned to introduce basic science concepts in a "cyclical, or open spiral approach."[3] Each textbook included units built around the following topics: living things, the earth, the universe, matter and energy, and the human body. In Science 4, the skill of making inferences was stressed in all the units.

Chapters concerning health, i.e., the body--its anatomy, physiology, and care--were included in the science textbooks and in the classroom units. These units and the time allotted to them were usually included in any discussion of science. They were not considered otherwise.

The Communities and the Schools

The following descriptions of the twelve communities and schools which were investigated for this study are based on U.S. Census reports for 1960, on information from interviews with principals, librarians and science teachers; and on data from school and public library records. A table in Appendix C and Figures 2 through 4 on the following pages graphically portray the essence of the narrative descriptions which follow.

Community 1

Community 1 is an older, static neighborhood which was once a section of a small town adjoining City I. The city annexed the area after World War II, and in 1954 assumed responsibility for the school district. Taking all data into consideration -- i.e., economic level, housing, education and labor force--the area probably could be classified as a lower middle class section of the city.

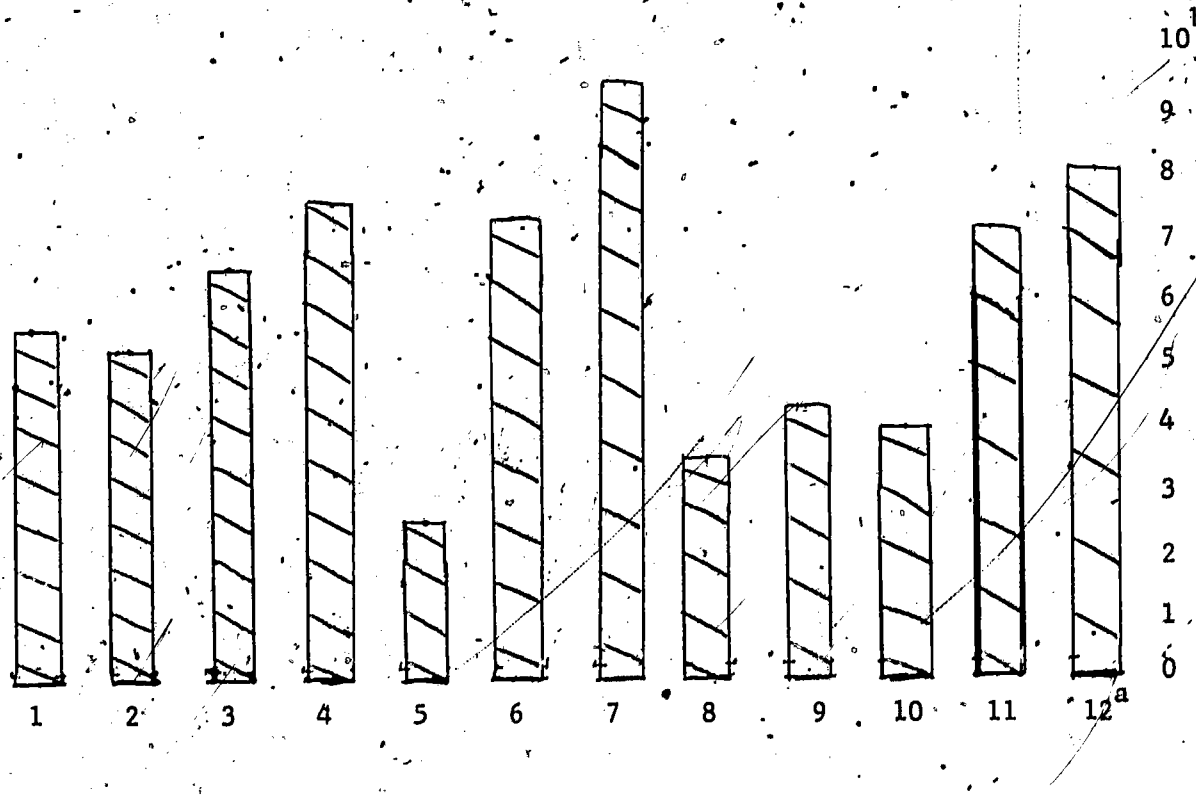

Figure 2. Median Annual Income of Families and Unrelated Individuals in the Twelve Communities, 1960[c]

[a]Numbers designate schools: 1-6, District I; 7-12, District II.

[b]Thousands of dollars.

[c]Data was taken from the following U.S. Census Reports: U.S. Bureau of the Census, U.S. Censuses of Population and Housing: 1960. Census Tracts. Final Report. PHC (1) - 34 (Washington, D.C.: U.S. Govt. Printing Office, 1962) and U.S. Bureau of the Census, U.S. Censuses of Population and Housing: 1960. Census Tracts. Final Report. PHC (1) - 63 (Washington, D.C.: U.S. Govt. Printing Office, 1962).

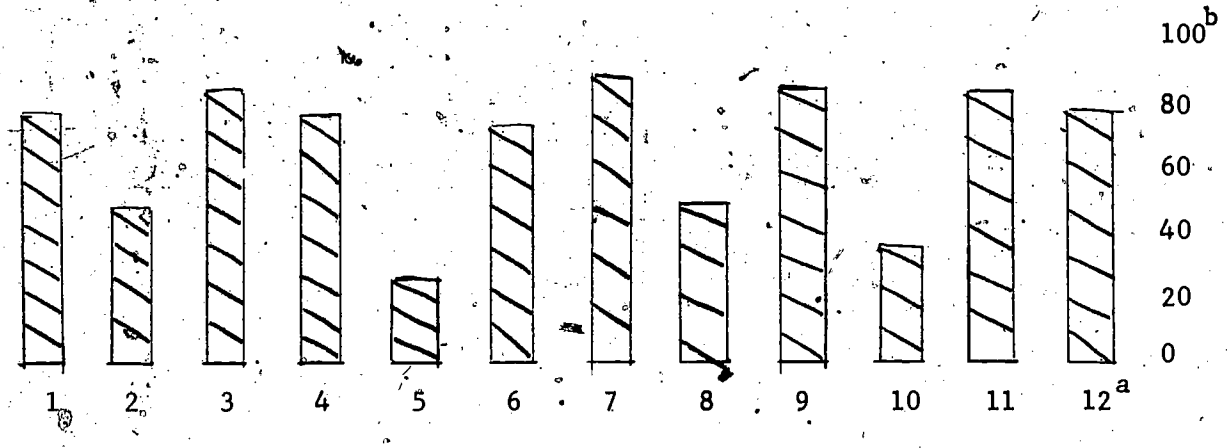

Figure 3. Housing in the Twelve Communities, 1960: Percentage of Owner Occupancy[c]

[a] Numbers designate schools: 1-6, District I; 7-12, District II.

[b] Percentage.

[c] U.S. Bureau of the Census, U.S. Censuses of Population and Housing: 1960, PHC (1) - 34, 1962 and U.S. Bureau of the Census, U.S. Censuses of Population and Housing: 1960, PHC (1) - 63, 1962.

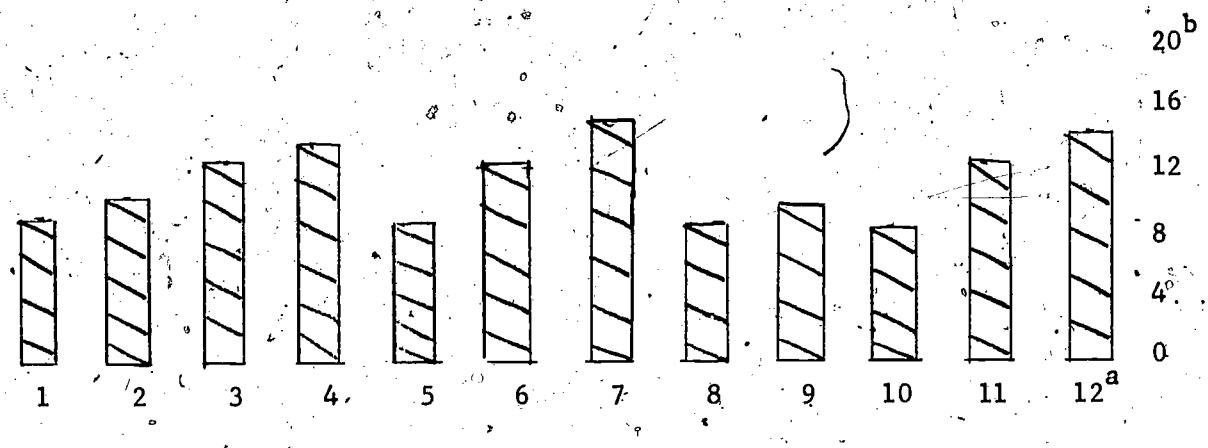

Figure 4. Median Years of School Completed, Persons 25 Years and Older, 1960[c]

[a]Numbers designated schools; 1-6, District I; 7-12, District II.

[b]Years of schooling.

[c]U.S. Bureau of the Census, U.S. Censuses of Population and Housing: 1960, PHC (1) - 34, 1962 and U.S. Bureau of the Census, U.S. Censuses of Population and Housing: 1960, PHC (1) - 63, 1962.

The Principal of the school of 1184 students, who had lived in the community for over twenty years, was able to describe it quite accurately. He estimated that the mean income in the community was $7,000 (the 1960 Census median income figure was $5,815), and that 60 per cent of the labor force consisted of truck drivers, construction workers, waitresses, and other semi-skilled workers. Many of the citizens married very young, remained in the older frame houses so that they could support large families, and owned their own homes (the 1960 Census states that 81 per cent of the population owned their homes).

Until the late 'sixties, its population was almost 100 per cent white. Negro students have enrolled in increasing numbers, and by 1969, 18 per cent of the students were Negro. The Principal expects the Negro population to continue to grow and, at the same time, to see a slight increase in the number of students from a new, higher income addition in the area, where professional people live.

Some grazing land was still available three blocks from School 1, but a permit to construct a 500 mobile-home addition on it had been granted. A major river served as the western boundary of the community.

The school was crowded and, as the enrollment grows, will probably become more crowded. An addition to the building has been planned. The seven sections of fourth grade students, 190 students in all, were taught science by five different teachers: one teacher taught three sections of fourth grade science in addition to six other sections of science for grades one, two, three, and five. One section of fourth grade science was taught by a mathematics teacher who also taught one section of second grade science and one section of third grade science. The seventh section of fourth

grade science was taught, at the time the investigator visited the school, by a teacher on a temporary assignment; for this reason, she was not interviewed.

Each section was assigned to a science teacher for a period of thirty minutes, either two or three times a week.

No formal plan existed for curriculum development by the science teachers in the school. However, there was informal discussion of units, principally about the ordering of films from a central depository for use with classes.

The librarian had served as a school librarian for more than thirty years. In the 1930's, she had helped establish high school libraries in the western region of the state. During the past twenty-one years, she had been an elementary school librarian; for fourteen of these years, she had been the librarian of this school. A full-time clerk assisted her in the library.

Only the fifth and sixth grade students were assigned library periods weekly. The librarian described her function in the following excerpts from her policy manual:

1. "As soon after school starts as possible (the first week if possible) the Librarian listens to each child read. A book on his grade level is selected. Each child reads a few paragraphs from it and he is checked according to his reading ability...

2. The Librarian then helps them select books on their reading level...

3. There are special shelves in the workroom section for their books. About fifteen minutes before the period is over, they put markers, with their names on them, in the books. These are taken up and they get these same books back each time until they have finished reading them. The last fifteen minutes of the period they may go to the shelves and select a book to check out to take home...

4. The Librarian tries to keep up with the work they are doing in other classes. Then she helps them select books along those lines for additional reading.

6. About twenty minutes of the library period once or twice a week is spent in reading aloud to the students. They all enjoy listening to good stories. It is so important to learn to be good listeners."

Science teachers, primary grade teachers, and language arts teachers charged collections of books for their classrooms. These books were returned to the library as soon as students had read them, usually after three or four weeks. Individual students might visit the library before and after school hours. The library was small and crowded; no space was available for individuals or groups when classes were in the room.

Public library facilities were available in a branch opened in 1961. The branch, with approximately 2000 science titles in the children's collection, was thirty blocks from the school.

Community 2

Unlike the area just described, Community 2 has changed greatly during the past ten years. Established in the early war years of the 'forties and surrounding one of the earliest plantation homes in the county, it was, by 1960, essentially like Community 1: a lower-middle class white neighborhood of small frame homes, 50 per cent of them owned by the inhabitants--who earned a median income of $5,571.

By 1969, however, the Principal estimated that the population was 98 per cent Negro. His student body of 1200 consisted of 4 per cent Mexican American students, 3 per cent white students, and 93 per cent Negro students. The white students came from a tiny independent community whose children attended this school.

Mean income was estimated at $5500 by the Principal, with a range from $250 a year to $10,000. Sixty families, with 293 children, were on the free lunch program in 1969. Probably seventy-five families received welfare payments, the Principal suggested. The income level of the families of students was low enough to have the school declared eligible for Title I funds.

The Principal estimated the mean educational level of the adult population at seventh grade, a figure much lower than the 1960 census level of 10.7 grades. The labor force, containing approximately 80 per cent unskilled and semi-skilled laborers, worked at a nearby veterans' hospital, as domestic servants, and in large electronics industries in the city.

The seven sections of fourth grade science were taught by four teachers: three teachers taught science, language arts, and social studies to two sections of students and one teacher taught the three subjects to fourth and fifth grade sections. Teachers consulted with one another informally about science units.

As in the previous school, only the fifth and sixth grade students were assigned to the library weekly, where the librarian taught them library skills, participated in individual reading guidance, and occasionally read to the students. Assisted by the librarian, teachers selected classroom collections of books, usually for a period of six weeks. Students were allowed to come to the library before and after school, and teachers occasionally brought classes which were not assigned periods to the library.

The nearest public library branch, opened in 1969, was approximately thirty-five blocks from the school. Its collection of science books for children included 1,500 titles.

Community 3

This community was established in the 1950's on the outskirts of the city, adjacent to a suburban city with a concentration of aviation, petroleum research, and electronics firms. Data from the 1960 Census indicated a higher income, older, white population with a median educational level of 12.3 grades. The Principal estimated that, by 1969, approximately 60 per cent of the working force could be classified as professional employees, 30 per cent might be considered clerical, and 10 per cent laborers. A large number of engineers lived in the community.

Eighty-six per cent of the homes were occupied by their owners in 1960. There were apartment buildings in the area, but most of the homes were in the $40,000 to $75,000 price range. The Principal estimated a present range of income of $8,000 to $50,000. This community was included as one of the high socio-economic level schools.

The school, which served grades one through six, had 580 students enrolled in October, 1969. There were four sections of fourth grade classes, with one hundred students. These four sections were taught science by a teacher whose assignment was to teach science to the fourth, fifth, and sixth grade students. Students either had two or three hours in science class each week; depending on whether they were scheduled for science on Monday, Wednesday, and Friday or Tuesday and Thursday.

The science teacher, a biology major in undergraduate school, had taught twenty years as an elementary teacher. She explained to the investigator that the fourth grade would study the following units: (1) living organisms (students could bring specimens), (2) chemistry (atoms and molecules), (3) electricity and magnets, (4) machines and levers (coincided with

Science Fair), (5) composition of the earth, (6) space, and (7) plants. Students were extremely interested in science, she said, possibly due to the fact that many of their fathers were physicians, engineers, or scientific research personnel.

Other factors contributing to the students' interest may have been the teacher's enthusiasm for the subject and the high average reading level of the students.

Fourth, fifth, and sixth grade students were scheduled weekly into the library for either two or three periods. Teachers of grades one, two, and three were encouraged by the librarian to charge collections for their classrooms.

Public library facilities were located approximately twenty-five blocks from the school, in a branch opened in 1964. The children's science collection numbered some 3300 volumes, about 2000 titles.

Community 4

Like the previous one, this community was established in the early 1950's. According to its median income in the 1960 U.S. Census, $7500, it should have been classified as a "high socio-economic" level school, but several factors made it evident that it belonged in the "average" group.

The Principal described the school community, in 1969, as one "moving down," or bordering on lower middle-class. Families were becoming younger, he stated, and the enrollment was larger in the first three grades than in grades four, five, six, and seven. Most of the mothers in the community worked, and there were several one-parent families. He estimated the mean income of families in 1969 at $6,500. Many of the working force were

employed at nearby electronics manufacturing plants. While 80 per cent of the families owned their homes in 1960, by 1969 there were large numbers of rental dwellings.

Science was taught to the five sections of the fourth grade by a teacher who also was assigned the responsibility for one section of fifth grade science and one section of third grade language arts. Each section spent thirty minutes a day on science. One section of the fourth grade was an accelerated class. The teacher stated that, while this class needed enrichment materials in science, all other sections had difficulty reading the science textbook with comprehension.[5]

Because the school had seven grades, only the seventh, sixth, and part of the fifth grade students were assigned to the library each week. First and second grade teachers charged collections from the library for their classrooms. Collections of books were placed on book trucks in the third, fourth, and fifth grade language arts classrooms. These collections, of approximately 500 books, were exchanged for other books in the library at the end of each semester. Whenever necessary, the fourth grade science teacher allowed individual students to go to the library during the science class period. Teachers also charged additional books from the library for use with science units.

The nearest public library was located eleven blocks from the school campus. It housed a collection of approximately 2000 science titles for children.

Community 5

This community was the second Title I school from District I included in this study. The school building stood in the heart of the city's worst

slum, in the shadows of the downtown skyscrapers. Once a proud and prosperous community of large, well-kept homes, it had progressively become a slum area through consecutive waves of population change: first the affluent white population moved to the suburbs, then the professional and more affluent Negro population moved in and out of the area, to be followed, in the 'fifties and the 'sixties by the poorest of the Negro population. Data from the U.S. Census of 1960 showed that only 25 per cent of the homes were owner occupied, with the rate for more than one-person-per-room occupancy running as high as 20 per cent. Many of the large homes were ramshackled tenements. The median income was only $2,719 in 1960 and 30 per cent of the work force was employed in private households or in other personal services.

By 1969, the blight of the area was even worse. The Principal stated that 40 per cent of the population was on welfare, one-third of the students were given free lunches at school, and many of the children came from homes with no fathers. He estimated that 97 per cent of the work force could be classified as unskilled labor.

The 929 students, in grades one through six, attended school in a building erected over seventy years ago. Both science teachers explained that they rarely used the science textbook for fourth grade. One teacher relied largely upon non-book materials, while the second science teacher used textbooks written for use in grades one, two, and three. These students scored lower on the achievement tests, given in the spring of 1969, than did any of the fourth grade classes from the other eleven schools. Their reading average, as third grade students, was 2.63 grades. Both science teachers and the librarian mentioned the severe reading problems in the school. The science teachers estimated that only 5 per cent of the fourth grade students were reading on grade level.

Only three fourth grade sections, the fifth, and sixth grades were assigned library periods. Students in grades one through three, as well as the remaining three sections of the fourth grade, were encouraged to charge books from the library before and after school. Teachers charged collections of books for their classrooms. However, before holidays, they were asked to return these because of the frequency of vandalism.

The nearest branch of the public library system was within walking distance of the school, where approximately 1000 science titles for children were available. The branch was opened in 1968. Before that date, students could have used an older branch which was slightly farther from the school.

Community 6

The last school investigated in District I served a community established in the 'forties--a community which included among its population a portion of one of the wealthiest sections of the city, with homes in the $75,000 to $200,000 class, as well as more average homes, and a section of older project homes. In 1960, the median educational level attained was 12.4 grades, and the median age was 31.9 years. The Principal estimated that, by 1969, the mean income was around $12,000 to $15,000, and that 60 per cent of the working population consisted of professional employees. Four of the 750 students received free lunches. This community was included as one of the high socio-economic level schools.

The four sections of fourth grade, 97 students, were taught science by two teachers who also taught language arts and social studies to these students. Approximately one hour a day was allotted to science for each section. Both teachers stated that they conferred informally about their units,

showed films together, and copperated whenever possible. Both mentioned the difficulty of the sciencee textbook. To supplement the text, they relied upon collections of books from the school library, books borrowed from the public library, and books brought by students from their home libraries and the public library.

Only fifth, sixth, and seventh grade students were assigned library periods. The librarian charged collections to classrooms, and welcomed students before and after school hours. On an informal basis, the librarian talked with teachers about their needs for class units. She invited all teachers new to the building to visit the library, she reported.

Public library facilities were located twenty-six blocks from the school. The collection of 33,000 volumes for children included approximately 2000 science titles.

Community 7

The first school visited in District II served a community consisting of teachers, junior executives, physicians, attorneys, and other professional employees. It was included as a high socio-economic level school. Of all the twelve schools visited, its third grade, in the spring of 1969, received the highest average score on reading tests: 4.93 grade level. The Principal estimated that there had been a slight change in the community's status in the previous ten years--a few families had moved to larger homes--but basically it had remained a higher socio-economic area. Its median income in 1960 was $9,235; its median educational level was fourteen years, and 84 per cent of its housing was owner occupied.

The school population was large: 1,713 students were enrolled in kindergarten through grade six. The 235 students in the fourth grade were divided into eight sections. Homeroom teachers taught science to five of the sections. Three of the sections were grouped together for team-teaching of science, social studies, arithmetic, and language arts. All of the fourth grade teachers met at the beginning of each school year to plan their science units around the available non-book materials and books. Units were staggered or placed at the same time to facilitate use of materials.

The three teachers involved in team teaching planned ninety minutes a week for science. One of the teachers taught science to the students; the other two teachers assisted with projects, reading groups, and assignments. For other subjects, the students were divided by ability.

The library was an attractive area which had previously served as two classrooms. An additional room was to be added for listening stations, carrels, and the storage of multi-media. All students, including the special education classes for the mentally retarded students, came to the library with their teachers, once a week. Several mothers served as aides: they charged materials, helped in processing, filed catalog cards, and shelved books.

The nearest public library branch was a ten-minute drive from the school. It contained approximately 200 volumes in the children's science section.

Community 8

Community 8 was established after World War II. From 1963 until 1966, its population changed. In 1963, according to the Principal, the population contained a large number of Mexican Americans. By 1969, the population had

become approximately 84 per cent Negro, with an estimated mean income of $5000. Most of the fathers were either construction workers or truck drivers. Because of the community's low economic position, the school received Title I funds.

The 1960 U.S. Census data indicated that the median educational achievement was 8.7 years of schooling, that 11 per cent of the labor force was in construction work, and that approximately 50 per cent of the population was Negro. Fifty per cent of the homes were owner occupied in 1960, with 16 per cent of the homes having more than one person per room. The librarian reported that 1969 was the first year that a parents organization had been active in the school.

Science was taught to four sections of fourth grade students by homeroom teachers. Approximately one and one-half hours were spent each week on science activities. All of the teachers mentioned informal discussion of science units, but there was no formal plan for coordination or cooperation. Materials from the library were used to supplement the textbook, because more than 75 per cent of the students were reading below grade level.

This school was one of twenty-six schools in the District operating under an FOA (Focus on Achievement) program. Under the program, begun in 1965, a librarian was assigned to the school on a full-time basis and the collection was doubled in four years, from 2600 volumes to 5574 volumes. A part-time clerk assisted the librarian in serving kindergarten through grade six.

The library was in an attractive room, with shelves for books and a useful collection of non-book media, including many study prints. While all classes were assigned to the library for thirty minutes a week, there were also periods of time available when the librarian demonstrated the use

of audio-visual equipment to the teachers, aided small groups in research activities, assisted teachers in selecting books for classroom use, and performed other library routines.

The nearest public library branch was located two miles from the school. It contained approximately 200 science volumes for children.

Community 9

The community which surrounded school 9 was a lower-middle class community of construction workers, postal employees, truck drivers, and other unskilled laborers. It was established in the early 'fifties and had always been Negro in population. The Principal estimated that one-half of the women in the community worked as domestic servants, bakers, or in manufacturing plants.

While the U.S. Census of 1960 indicated that 86 per cent of the homes were owner-occupied, the Principal thought there were fewer homeowners and more renters by 1969. She estimated that 70 per cent of the homes were rented. The median income of the area in 1960 was $4,353, and the median educational level was 10.4 grades. Although it is not an affluent community by any sense--the Principal estimated the mean income in 1969 at $5000--the people were employed and the area could in no way be considered a slum.

The school of 1283 students was crowded. There were seven sections of fourth grade. Students were taught all subjects by homeroom teachers. Five of the seven teachers had, or would have during the current year, attended in-service workshops at the district science center to aid them in curriculum planning for their science units. These teachers stated that they usually divided their classes by reading level (they reported that approximately a third of the students were reading below grade level). Units from

the textbook were adjusted for those unable to understand the material.

The space available for a library was smaller than in the two previous schools investigated in the district. Whenever a class was in the library, it would have been difficult for individual students or small groups to use the library for research.

A branch of the public library was located within walking distance of the school. Its children's collection of 10,000 volumes included 200 volumes of science books.

Community 10

This community was established approximately thirty-five years ago by Negroes on the northern outskirts of District II. Most of the people owned their homes and a stable population resulted. By 1960, however, the younger citizens began to move from the area while the older people remained. The U.S. Census data for 1960 showed only 35 per cent of the homes were occupied by owners. Twenty-five per cent of these homes were listed as dilapidated, and 20 per cent had occupancy of more than one person to a room. The census data showed a 33 per cent Mexican-American population in the area, but the Principal reported that they attended another school, three blocks away. Median income in 1960 was $4,169, but by 1969, the Principal estimated the mean income at $3000. Because the community's income was so low, the school was eligible to receive funds under the Title I program.

There were 865 students enrolled in grades one through six and in two special education classes. Because the enrollment had dropped from the level of the previous year, the science teacher for the fourth grade was transferred. Homeroom teachers taught science to their students. All

sections of social studies, reading, and arithmetic were taught by one of the homeroom teachers. Sections were large: from thirty to thirty-four students each. One section consisted of students reading below grade level; two sections contained students reading on and below grade level; and one section contained students who were reading on grade level. Teachers conferred informally about science units. They stated that it was necessary to simplify the concepts for most of the students.

The librarian used several methods to help teachers with their units. She invited teachers to inform her, in advance, of the unit topics so that she could assemble materials for their classrooms. She correlated films, storytelling, and reading aloud in the library with curricular units. To supplement the school collection, she charged books from the public library.

The most convenient public library branch was approximately eight blocks from the school campus. There were 500 science volumes in its children's collection.

Community 11

According to the 1960 Census data, Community 11 looked like the prototype of a higher income school: median income, $7,437; median grade attained by the population over 25, 14.4; 86 per cent of the houses were occupied by owners. However, by 1969, the community of homes in the $10,000 to $20,000 range was beginning to change: apartment buildings had been built, there were more rental dwellings, and there were more laborers in the community. The Principal estimated that 75 per cent of the working population still could be considered professional employees. Many teachers lived in the area, she reported. There were no Negroes attending the school, but

approximately 16 per cent of the students were Mexican American. This community was included as one of the "average" neighborhoods.

The five fourth grade sections were as large in this school as they were in the school just previously described: all sections had more than thirty students enrolled. Homeroom teachers taught all subjects except music. Three of the teachers reported that they have been enrolled in workshops at the district science center. One teacher had served on a science textbook committee and one had been a member of a pilot team to develop units for a previous science textbook. There was no formal review of the science curriculum, but the teachers reported that they discussed problems.

Since students were grouped according to ability, the section composed of high achievers used Science Research Association kits, library media, and experiments for enrichment. Students in the section composed of low achievers were interested in collecting specimens. Another teacher stated that she was correlating social studies and science for her students who needed advanced materials.

The library in this school had served as a model project in the district. Four rooms had been combined to create a media center. Half of the center was carpeted and contained stacks for books. The other half of the center, which could be partitioned by a movable wall, contained carrels for filmstrip viewing, three listening centers, storage for non-book media, and space for lectures on library use.

Teachers and the librarian supervised classes in the library for thirty minute periods each week and every class was allotted an equal amount of time for small group research or for library instruction. A team of forty-five

mothers, a clerk for one-half time, and sixth grade student assistants did the book processing, circulation routines, and shelving duties. Student assistants (one each hour) also searched the card catalog for materials for first, second, and third grade students. Individual students were allowed to use the library for research, to browse, to work on programmed units designed by the librarian for library instruction, and to charge materials before and after formal school hours and during the school day.

For each grade, regular planning meetings were held by the teachers and librarian. At these meetings, the teachers discussed curriculum units and media needs with the librarian.

Teachers reported that they occasionally charged collections of books for their students from the public library and that students also brought books from the public library. The nearest branch was eight blocks from the school. The children's collection in the public library contained approximately 500 science volumes.

Community 12

School 12 was established in 1925 in a small, independent municipality. The village still exists, surrounded by City II. Its school was annexed by the city in 1951. Probably the wealthiest area visited, this community borders on the oil research center of the city, and many of its inhabitants work there. The 1960 U.S. Census data revealed a median income for the area of $8,047, and an educational achievement median of 12.9 years. The median age of the population was 42 years. The Principal estimated that 90 per cent of the men in the community were professional employees, and that the remainder of the employees were retired. He also estimated that 25 per

cent of the mothers worked and, of this number, that 15 per cent were clerical employees.

There were thirty-one students in each of the six sections of the fourth grade. Because the reading clinic for the area was located in this school, every section had four or five "problem" readers. However, finding materials to enrich the curriculum for advanced students appeared to be more of a problem than it was to adjust science units for those students reading below grade level. Even here, teachers mentioned the difficulty of the textbook. They also stated that they used non-book media extensively. There was no formal correlation of units, but teachers informally exchanged ideas for the science curriculum. All had attended four meetings to introduce the science textbook in 1968.

The library of over 11,000 volumes was one of the earliest elementary school libraries in the district. There were 4,000 volumes in the library by 1964. Most of the earlier book funds were supplied by the Parent-Teacher Association. This organization donated approximately $1,000 to the library for the school year of 1969-70, and a team of community mothers aided in processing, circulation routines, shelving, and other library routines.

Students were assigned to the library one hour a week. The library was located in a prefabricated barracks adjacent to the complex of permanent buildings that housed classrooms and was extremely crowded with books. To better utilize the limited space, the librarian allowed individual students to come for research purposes during school hours as well as before and after school. The librarian conferred informally with teachers about science units during regularly scheduled visits by the teachers and students to the library,

charged collections to classrooms, and aided the teaching program whenever possible.

A branch of the county public library was located one block from the campus. The science collection for children was smaller than the school science collection.

Summary

The two cities chosen for this investigation of selection procedures for elementary school libraries are both centers of standard metropolitan statistical areas with more than one million inhabitants; both have broad economic bases of agriculture, trade, and manufacturing; both have populations which are one-fourth Negro.

Elementary school libraries were established in City I in the 'thirties. Since fixed schedules were used, half or fewer of the students were scheduled for library periods weekly. The district Consultant for Library Services planned new libraries and collections, as well as advised librarians. In City II, a team of professional librarians assumed more responsibility for elementary school libraries, possibly because (1) the program was relatively new, and (2) many of the schools were served by librarians on a part-time basis. In both cities, collections were small, library facilities were cramped, and services were generally curtailed by lack of adequate staffs.

Fourth grade science programs were similar in the two school districts. Both cities had elementary school science consultants who aided and supervised the teaching program. Both cities used basal textbook series which included units on plants and animals, the universe and the earth, matter and energy, and health. Science was taught by a variety of patterns:

homeroom teachers, science teachers, other subject specialists, individually and in a team-teaching situation. The amount of time allotted to science was as varied as the plans for teaching it.

The twelve communities surrounding the schools selected for the study illustrated some of the countless differences which compose the mosaics which are today's cities. The schools, in turn, mirrored their communities.

Two communities, one in each city, were representative of the old, stable, and wealthy areas reminiscent of the pre-World War II era. Two communities, one in each city, were the homes of the younger, more mobile professional society of the post-war years. Yet two other communities, one in each city, housed those citizens on the lower rungs of the professional ladder--who moved "up and out" from their average neighborhoods whenever fortune permitted.

There were two communities, one white and one Negro, whose industry and economy kept them barely out of poverty's grasp. The remaining four communities, all predominantly Negro, were on various levels of poverty. Their low income made them eligible for aid under the Title I Program of the Elementary and Secondary Education Act of 1965.

FOOTNOTES FOR CHAPTER IV

[1]John Gabriel Navarra and Joseph Zafforoni, Today's Basic Science:4, Teacher's Edition, (New York: Harper and Row, 1967).

[2]Ibid., p. vii.

[3]Herbert A. Smith, Milo K. Blecha and John Sternig, Science 4, Teachers' Edition, (River Forest, Ill.: Laidlaw Brothers, [1966]), p. vii.

[4]The words Negro and white are terms used in the U.S. Census Reports. "Mexican American" designates citizens who speak Spanish.

[5]Many of the teachers in both districts mentioned the difficulty of science textbooks.

CHAPTER V

ANALYSIS OF SELECTION PROCEDURES

This chapter contains the results of analyses of three sub-hypotheses developed to test the hypothesis that

> as selection procedures for elementary school libraries become less centralized and standardized, the quality of collections improve because school librarians and teachers are more actively involved in selection.

These sub-hypotheses deal with three aspects of selection: (1) the criteria used in selecting books for the twelve elementary school science collections, (2) the bibliographic aids used by fourth grade science teachers, librarians, and district consultants, and (3) the selection activities performed by personnel. They are:

1. Librarians and teachers who select independently are more aware of selection criteria for science books than are those personnel who use a local buying list.
2. Librarians and teachers who select independently consult more selection aids than do those personnel who use a local buying list.
3. Librarians and teachers who select independently perform more selection activities than do those personnel who use a local buying list.

In order to understand the activities performed by the various members of the selection teams, a description of the general routine for selection in the two school districts is presented, before any discussion of the three sub-hypotheses. Basic information about the districts appears in Table 2 on the following page.

Table 2

Book Selection Procedures[a]

	District I	District II
Number of Persons on District Professional Library Staff	1	3
Per Student Budget, 1968		
Local Funds	$1.23	$1.50
Federal Funds	.43	.50
Selection Procedures	Science books are selected by teachers and librarians from book exhibits, review and professional media, textbook bibliographies, review copies, and suggestions from consultants.	Science books are selected from a system-wide approved list, compiled from reviews by teachers and librarians from review copies and from reviews in reviewing media. Many books from the list are displayed in a yearly exhibit.
Frequency of Orders		
Annual		X
Semi-annual	X	
Processing and Cataloging of Books		
Centrally		X
In each school library (Commercial kits and cards may be purchased)	X	

[a]Information was supplied by District Consultants.

General Selection Procedures in Districts I and II

District I

In the district which had no approved buying list, the procedures for selection of science books for elementary school libraries were relatively simple. Orders for books to be purchased with district funds were compiled by librarians in the schools twice a year and sent to the district library consultant. The cumulated order was then forwarded to the jobber in May and the books were received, hopefully, in the libraries by September. The remainder of the local budget was spent in a fall order--usually in November--and the books received in the libraries during the spring. Orders purchased with federal funds, which required strict accounting and inventory procedures, were scattered throughout the school year and followed an entirely different routine.

Various selection aids were available in the school libraries. The District Library Consultant had purchased copies of the Children's Catalog, 1966 edition, and the third edition of the Elementary School Library Collection for each elementary school library in the system. In addition, she had placed subscriptions, for each elementary school, to two reviewing journals: Science Books in 1967 and 1968 and Appraisal in 1969. Individual librarians were encouraged by the School Library Consultant to order reviewing journals or basic selection lists with funds from their library budgets.

The School Library Consultant viewed her position as one of leadership. She accomplished this task--in book selection--through several means. In addition to supplying the school librarians with several selection aids, she maintained an extensive collection of selection aids and acquisition tools in

a professional library in the school administration building. Publishers' advance copies of books also were housed there, so that librarians and teachers might browse among them.

The fall and spring collections of Books on Exhibit were available to librarians and teachers. Lists from these collections were sent to each school librarian, and were available for teachers and librarians at the exhibit sites. A local book jobber provided space for one of the collections each year. The other collection was routed to junior high schools where area librarians and teachers might visit the exhibit with ease.

Lists of books were occasionally circulated from the School Library Consultant's Office, but these lists were suggestive only. Basic collections for new school libraries were purchased by the School Library Consultant.

During the school year of 1968-69, librarians organized area meetings to discuss new books and selection problems. These monthly meetings were patterned after the book evaluation meetings for the public library staff. One of the meetings brought all elementary school librarians together to hear a lecture concerning selection criteria and reviewing media. Beginning in the fall, 1969, all members of the faculty were allowed several afternoons during the school year for professional development. Librarians planned to use this time to browse among new books at the School Library Consultant's office, to visit bookstores and public libraries, and to meet with teachers to improve the various curricula.

The Elementary Science Consultant also assisted in the selection of science books in several ways. First, she occasionally sent lists of basic science teaching aids to science teachers: reference books, periodicals, useful books for children, and lists of publishers and suppliers. Second,

new books were prominently displayed in the Elementary Science Consultant's office. Whenever teachers met in the office, they were encouraged to browse among the new books. Third, the Consultant compiled lists, to be sent to science teachers, of titles from Appraisal, of materials seen at exhibits, and of titles of publishers' review copies. Fourth, teacher committees were requested to develop resource units to share with other teachers throughout the district. One of the items in the unit was "materials" which included a bibliography of useful books. Finally, the Elementary Science Consultant reported that she was compiling a workbook for science teachers, in which a bibliography of useful books would be included.

At the individual schools, librarians coordinated selection activities. Librarians supplied library request slips to all the teachers. Then, twice during the year, at times designated annually by the School Library Consultant, librarians submitted orders compiled from teachers' requests and titles which they, the librarians, considered useful for their collections. The titles were checked in Books in Print, typed on a form, "Library Book List," signed by the Principal, and sent to the School Library Consultant, who forwarded the orders to the district purchasing office.

Books purchased with district funds, i.e., not with ESEA Title I or Title II funds, were delivered directly to the school libraries by the jobber. The packing slips, which accompanied the books, were used by the librarians to check the orders and the books. When the invoices, routed through the district purchasing office, were received by the school librarians, they signed them and returned them for proper accounting of their yearly budget.

District II

The selection routine in District II was, as has been stated previously, more organized and supervised than in District I. Books were ordered with district funds annually, in the spring, and delivered to the school libraries in the fall, after having been cataloged and partially processed at the District Elementary School Book Processing Center. Librarians completed the processing by (1) stamping the books with the school ownership stamp, (2) pasting date due slips, if used, in the books, and (3) filing the catalog cards.

Although basic selection aids, such as the Children's Catalog, the AAAS Science Book List for Children, and Booklist were available in some of the libraries, the school librarians and teachers were encouraged to rely, and, to a great extent, did rely on the annual local buying list for titles of books to be purchased.

The annual buying list, and an exhibit composed of most of the titles included on the list, was organized for the first time in 1949. Twenty years later, by 1969, it had become the primary tool for selection. The Specialist for Printed Materials, K-12, compiled the annual buying list, which was entitled the "exhibit bibliography." She explained that, in addition to review copies supplied by publishers, she checked reviews in professional library and education journals for new books. For each book received from a publisher, or noted in a reviewing journal, she made an "authority card." On this authority card, she included basic bibliographic information, a short annotation, suggested grade level, and dates of reviews located in the following reviewing journals: Booklist, Elementary English, Horn Book, Library Journal, AAAS Science Books, New York Times Book Review, Saturday Review, Top of the News, the Bullefin of the Virginia Kirkus Service, and

Bulletin of the Center for Children's Books. Authority cards were on file for every book reviewed during the past twenty years. Numbers, located on the verso of each card to designate district elementary schools, were circled to record purchases.

At the beginning of every school year, at regional meetings in the district, the Supervisor of Library Services, K-12, asked librarians to volunteer to review books. The librarians were encouraged to ask teachers in their buildings to help them in the reviewing of books. Subject specialists on the district level also were asked to participate in the evaluation of new books. Advance copies received from publishers or books ordered for evaluation after reviews appeared in professional journals were sent to district personnel with book review sheets.

The book review sheet contained blanks to be completed or items to be checked, for the following information: date, name of librarian, teacher or student reviewer, author, title, format, and illustrations, reading and interest levels, style, criteria for fiction or non-fiction, use in curriculum, comparison with other books, strong or weak features, and an evaluation scale of five levels, from "first purchase" to "not recommended." If a book was recommended by (1) at least two professionals in the school district, or (2) in a review periodical, it was placed on the annual list and in the annual exhibit.

In addition to new books, each annual buying list contained titles in one of two subject areas which had either been favorably reviewed in basic selection aids or by district personnel for the authority file. The 1969 list contained titles published in 1967 and 1968, as well as titles "useful in the study of the newly-adopted science textbooks and revised sixth-grade geography curriculum bulletin."

The 1969 list, consisting of some 1600 titles, was arranged alphabetically by author. In addition to the author's name, each entry included a book number to use in data processing of orders, the title, publisher, year of publication, cost, binding, and grade level. Short annotations for 1967 and 1968 publications, and symbols to designate either titles correlated with science or geography textbooks or "first purchase" books, were included for appropriate titles.

Books, divided into three groups and shelved in the library of the Department of Instructional Materials, were available for teachers to use in building curriculum units. The groups were (1) books received from publishers, but not reviewed, (2) books reviewed and not listed, and (3) books reviewed and included in the current buying list. This latter group of books was placed on exhibit for librarians and teachers to examine. In the spring of 1969, the exhibit was open for five weeks in the mall of the centrally located district administration building. Previous yearly exhibits, which had been routed to various schools in the district, had been availabe for browsing by selectors for approximately eight weeks each year. The exhibit was arranged by grade level to facilitate its use by librarians and teachers.

A basic collection list for elementary schools was compiled during 1965. This list, which was being revised in 1969, was used to purchase collections to be placed in new schools.

One of the consultants for elementary grades participated, with help from other consultants, in the preparation of curriculum bulletins for various subject and grade levels. Because she had a strong background in the sciences, she was primarily responsible for the elementary science program. She, as well as the Director of the Elementary Science Education Resources

Center, reviewed science books for the Department of Instructional Materials. As stated in the section on the general science curriculum for District II, bibliographies were occasionally produced to accompany units written by the Elementary Science Educational Resources Center. A supplement to the Curriculum Bulletin for Grade Four, produced in 1968, included twenty-eight titles useful in the science curriculum. This supplement also referred teachers to the school librarians, to library card catalogs, and to the science sections of libraries for additional science books.

The routine for selection varied. Each year, exhibit bibliographies were supplied to school librarians who then distributed them to teachers, usually by grade level. In some schools, librarians assigned a budget to each grade level. The teachers selected the titles they wished to be purchased, after a visit to the exhibit. Then, the exhibit bibliography, with titles marked, was returned to the librarian. Some teachers divided into groups by subject; the librarian consolidated their selections and purchased the most popular titles. One librarian stated that she retained a portion of the budget to purchase outstanding titles not selected by teachers--or to build in subject areas not adequately covered by teachers.

After the books to be purchased had been selected by teachers and librarians, order slips for the books were prepared by the librarians. Order slips contained the following information: school code number, book code number (listed in the exhibit bibliography), title, number of copies, total cost, and a space to be checked for ordering duplicate copies. The slips, with a form indicating name and code number of school, number of books ordered, and amount of order, were forwarded to the central office of the Department of Instructional Materials.

When the books were received in the schools, librarians checked the packing slips against the list of titles ordered; compared accompanying catalog cards, book pocket and book card with the book; determined, by a check of the IBM card placed in each book, that the book had reached the correct school; and returned a signed copy of the packing slip to the Department of Instructional Services. After books had been stamped with the school ownership stamp, date-due slips pasted into the books, and cards filed into the card catalog, the books were ready to be circulated.

Librarians were encouraged to use individual school funds--activity fees, PTA funds, monies from paper drives, book fair proceeds, etc.--to purchase additional library books. Orders for books purchased with these funds were sent directly to jobbers. After the books purchased with district funds had been processed, catalog cards were supplied for the other titles. All of the physical processing, however, had to be done in the individual schools. Some district funds were available for "urgent needs"--books not included in annual display bibliographies--but these books were not processed until after the regular district orders were processed. The Director of the Department emphasized, during an interview, that librarians might order from previous annual buying lists. The ordering system was established to facilitate the ordering and processing of books from the annual buying list. If district funds were used, any variation from the recognized routine delayed the completion of the order.

Sub-Hypothesis 1. Selection Criteria

The first sub-hypothesis designed to test the main hypothesis concerns the criteria used in book selection:

Librarians and teachers who select independently are more aware of selection criteria for science books than are those personnel who use a local buying list.

Data Collection

Data were collected by two methods. First, every person interviewed--fourth grade teachers, librarians, and library and subject consultants--was asked the question: "Which criteria do you consider most important in the selection of science books?" Second, nineteen items were listed in the questionnaire which was distributed to every person who was interviewed. As was explained in the section, "Methods of Analysis," in Chapter III, the data concerning criteria collected by questionnaire were not analyzed.

There were several reasons why the questionnaire data were not analyzed. Three of the teachers were not interviewed: two in District I and one in District II. An additional five of the teachers did not return completed questionnaires: two in District I and three in District II. Respondents to the questionnaire section concerning criteria were asked to rank the criteria listed on a three point scale. Because most respondents ranked a majority of the criteria "1" (most important), the ranking appeared to have less validity than answers to the question concerning criteria in the taped interviews. All respondents completed the questionnaire section concerning criteria, but because of the low reliability of the answers to section two concerning the use of selection aids, a decision was made to use answers from the interviews as data to test the hypothesis.

Analysis of Data

A perusal of the table on the following page reveals that a similarity exists between the ranking of criteria for the selection of science books by

Table 3

Selection Criteria[a]

	District I						District II					
	1[b]		2		3		1		2		3	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Accurate, factual information	3	13	2	15	1	12	9	20	6	18	3	27
Binding	5	24	1	8	4	50	7	16	4	12	3	27
Clear, simple writing	5	24	3	23	2	25	20	45	14	42	6	55
Glossary, pronunciation key, and bibliography of further readings	0	0	0	0	0	0	3	7	2	6	1	9
* Illustrations	12	57	6	46	6	75	28	64	20	66	8	73
Index and table of contents	2	10	2	15	0	0	6	14	6	18	0	0
* Interest of children	7	33	4	31	3	38	18	41	11	33	7	64
Introduction	1	5	1	8	0	0	0	0	0	0	0	0
* Logical organization of concepts	6	29	3	23	3	38	16	36	11	33	5	45
Needed in collection	0	0	0	0	0	0	1	2	1	3	0	0
Opaqueness of paper	5	24	1	8	4	50	12	27	3	9	9	82
Originality of writing	0	0	0	0	0	0	1	2	0	0	1	9
Page layout	4	19	2	15	2	25	8	18	3	9	5	45
* Reading level of children	15	71	10	77	5	62	31	74	24	72	7	64
Recency of information	3	13	0	0	3	38	6	14	3	9	3	27
Reputation of publisher	1	5	1	8	0	0	3	7	1	3	2	18
Reviews in selection aids	2	10	0	0	2	25	2	3	1	3	1	9
Simple, safe experiments and activities	5	24	3	23	2	25	7	16	4	12	3	27
Size of type	8	38	3	23	5	62	10	23	5	15	5	45
Specific references in text to illustrations	0	0	0	0	0	0	2	3	1	3	1	9
Subject background of author	5	21	1	8	4	50	2	3	1	3	1	9
Subjects related to environment	1	5	1	8	0	0	3	7	3	9	0	0
Text and illustrations on same reading level	3	13	0	0	3	38	3	7	2	6	1	9
Use in curriculum	5	24	2	15	3	38	19	43	13	39	6	55
Various reading levels available	2	10	2	15	0	0	0	0	0	0	0	0

Table 3 (continued)

r_s	.83[c]

[a]Data collected in structured interviews with 21 members of District I professional staff and 44 members of District II.

[b]1 designates district personnel professional staff; 2 designates teacher responses; 3 designates librarian and consultant responses.

[c]Spearman rank order correlation for district (1) data only.

Criteria marked with an asterisk were ranked in the highest 6 by both districts.

(1) all selectors from the two districts, (2) teachers from the two districts, (3) teachers and librarians or consultants within each district and, to a lesser degree, (4) librarians and consultants from the two districts.

The need for books on the appropriate reading level for their students was mentioned as a criterion by more respondents in both districts than was any other criterion. Approximately three-fourths of the respondents--fifteen from District I and thirty-one from District II--mentioned this item during taped interviews.

The second most mentioned criterion was "illustrations." Fifty-seven per cent of the respondents from District I mentioned this item; 64 per cent of the respondents from District II included it in their criteria for selection.

Ranking of the remaining criteria differed between the two districts. The size of type was ranked third by respondents from District I in the taped interviews. Eight persons, 38 per cent, mentioned that they considered the size of type when evaluating a science book for their libraries. "Books of interest to my students" was mentioned by a third of the persons interviewed in District I. This item was ranked fourth from respondents' answers. The item ranked fifth by persons who were interviewed in District I was "logical organization of concepts." Six persons, 29 per cent, mentioned this item in interviews.

Six additional items were mentioned by five persons during interviews with District I personnel. These items were: "opaqueness of paper" (sturdy paper, durable paper, etc.); "binding"; "simple and safe experiments"; "of use with curriculum"; "clear, simple writing" (no anthro-pomorphism, simple language); and subject competence of author. Twenty-four per cent of the

respondents mentioned these items; they were ranked following the fifth ranked item, logical organization of concepts.

In District II, the school system which uses an annual buying list, the same criteria mentioned in the preceding two paragraphs, were, with the exception of one criterion, also ranked high. "Clear, simple writing" was mentioned by twenty respondents; "use in curriculum" was mentioned by nineteen of the respondents; and "interest of children" was mentioned by eighteen of the respondents. "Logical organization of concepts" was mentioned by sixteen persons. Items concerning the format of the book: "opaqueness of paper" (sturdiness) and "size of type" were ranked seventh and eighth. Twenty per cent of the respondents stated that they considered "accurate, factual information" important when selecting science books.

Three items mentioned by 20 per cent or more of the respondents in District I were not ranked as high by District II respondents. "Binding" and "simple, safe experiments" were each mentioned by 16 per cent of those persons interviewed in District II. Only two respondents included the "subject background of the author" as a criterion in District II. However, only 13 per cent of the personnel interviewed in District I mentioned the value of "accurate, factual information" as opposed to 20 per cent of the respondents from District II who included this item.

Responses of teachers--A similar pattern of correlation existed between the responses of the teachers from each district. "Books on the reading level of their children" was mentioned by over 70 per cent of all the teachers interviewed. The second ranked criterion was "appropriate, quality illustrations." Forty-six per cent of the teachers in District I mentioned

this item; 66 per cent of the teachers in District II mentioned this item.

Only one additional criterion was mentioned by more than 30 per cent of the teachers in District I. This was "interest of children." Four additional criteria were mentioned by more than 30 per cent of the teachers in District II. These were "clear, simple writing," "use in curriculum," "interest of children," and "logical organization of concepts."

Responses of librarians and district consultants--Librarians in the twelve elementary schools and district consultants who participated in selection activities also ranked "illustrations" and "books on the reading level of children" as the two items they considered first in the evaluation of science books. In District I, four other items were mentioned by 50 per cent or more of the respondents. These were: "clear, simple writing," "opaqueness of paper," "size of type," and "subject background of author." More than half of the District II personnel mentioned the following criteria: "clear, simple writing," "interest of children," "opaqueness of paper," and "use in curriculum."

Statistical tests--Two statistical tests were computed. First, the selection criteria were ranked by district. A correlation of .83 was computed by the Spearman rank order coefficient statistic. In other words, the twenty-one persons interviewed in District I and the forty-four persons interviewed in District II mentioned similar criteria in a highly similar ranking.

The second test, a difference of means test, was computed to determine if the mean number of the criteria mentioned per respondent is the same for both districts.

Table 4

Criteria Used in Selection of Science Books

	District I	District II
$\bar{X}$	4.76	4.93
s	2.50	2.64
N	21	44
$P_{.05}$ 2.00		
t = -.25		

The computed "t", -.25 is not significant. Therefore, the hypothesis that the mean number of the criteria mentioned per person in District I is the same as the mean number of the criteria mentioned per person in District II is accepted.

Summary--Personnel in both districts mentioned similar criteria in similar rankings. A high correlation of .83 was obtained between the ranking of criteria in both districts. Among the six highest criteria mentioned by respondents from both districts, four items were identical. These were "reading level of children," "illustrations," "interest of children," and "logical organization of concepts."

Criteria important in the evaluation of science books ("recency of information," "accurate, factual information," and "text and illustrations on the same reading level") were all mentioned by few respondents from each district.

There appeared to be no basis, after analysis of the data, to support the hypothesis that personnel from District I were more knowledgeable about selection criteria for science books than were the personnel in District II.

Sub-Hypothesis 2. Selection Aids

The second sub-hypothesis designed to test the main hypothesis concerns the bibliographic aids used in the selection of science books:

> Librarians and teachers who select independently consult more selection aids than do those personnel who use a local buying list.

Data Collection

Data were collected by two methods. First, every person interviewed--fourth grade science teachers, librarians, and district library and subject consultants--was asked to enumerate the selection aids which he used in the selection process. The fourth grade science teachers were asked: "Which selection aids do you use?" The librarians and supervisory personnel were asked: "Which five basic selection aids do you consider most important in the selection of a basic science collection?" and "Which five selection aids do you consider most important in the selection of current science books?"

Second, forty-six selection aids were listed in the questionnaire which was distributed to every person who was interviewed. Respondents were asked to rank the selection aids in the order of use. As has been already discussed, the data collected by the questionnaires were not analysed for several reasons. Three of the teachers were not interviewed: two in District I and one in District II, while an additional five of the teachers

(two in District I, three in District II) did not return completed questionnaires. Of those who did return questionnaires, two teachers from District I (18%) and six teachers from District II (20%) did not complete the selection aids section.

As a check on the reliability of the questionnaire answers, two nonexistent titles were included in the checklist of selection aids. A made-up book title, Science Books for Fun, by Anton Winters, was included in the list of basic selection aids. A made-up journal title, Elementary Science, was included in the list of professional periodicals which contained book reviews and lists of new books.

One librarian and two teachers from District I checked the Winters title. They ranked it from "used at least once this year" to "basic." Eleven respondents from District II checked that they had used Science Books for Fun. One member of the district consultative staff, one librarian, and nine teachers rated the title from "used at least once this year" to basic" (one librarian and one teacher).

Elementary Science was checked by all of the consultative staffs of District I and II, by half of the librarians from each district, by four teachers from District I and by seven teachers from District II. Twelve of the personnel ranked it as "basic." Because of the low reliability of the data obtained by use of the questionnaire, a decision was made to use the data collected through the taped structured interviews to test the hypothesis.

Analysis of Data

Fifty selection aids were mentioned by the sixty-five persons who were interviewed. In District I, which does not use a local buying list, only

three titles were mentioned by more than four respondents. Seven respondents stated that they used the Children's Catalog; five persons included Horn Book and the catalog to accompany Books on Exhibit in the titles of selection aids they used.

In District II, thirty-four (over 75 percent) of the personnel who were interviewed stated that they used the system book exhibit (and accompanying buying list) as an aid in the selection of science books. Thirteen of the respondents mentioned that they used textbook bibliographies as selection aids.

Responses of teachers--If the responses by fourth grade science teachers (thirteen from District I and thirty-three from District II) are examined, a similar pattern of the use of selection aids is observed. Teachers used exhibits, catalogs, or bibliographic aids prepared for them. Very few used subject or library reviewing journals.

Nearly three-fourths of the teachers from District II reported that they used the district annual book exhibit as a selection aid. The highest ranked selection aid for teachers in District I, the catalog listing titles in the Books on Exhibit collections, was mentioned by five teachers as a selection aid. Only three other aids were mentioned by teachers from District I.

The Elementary Science Consultant for District I, as has been mentioned, assisted in the selection of science books by preparing basic lists of science periodicals, books, and teaching aids. Three teachers mentioned these lists as selection aids. Textbook bibliographies also were mentioned as guides for selection by three teachers from District I. Two teachers

stated that they examined publishers' catalogs for titles to order. Each of the remaining seven aids were named by only one teacher from District I.

In District II, eight teachers mentioned science textbook bibliographies as sources for books. Individual school book fairs, planned by parent organizations and librarians to raise money for school libraries, were included as "selection aids" by five teachers. Three additional aids: Grade Teacher, college children's literature bibliographies, and the local buying list were each mentioned by two or more teachers.

Responses of librarians and district consultants--Librarians, as well as subject and library consultants, mentioned basic selection aids most often. All of the librarians interviewed in District I mentioned the Children's Catalog as a selection aid. Five librarians mentioned the Horn Book; four of the librarians mentioned the School Library Journal. Three librarians and the Elementary Science Consultant stated that they used Appraisal as a selection aid. Three, out of the eight, librarians and consultants included the Basic Book Collection for Elementary Grades, Bowker's Growing Up with Science Books, The Elementary School Library Collection, and Science Books in their statements concerning selection aids.

Librarians and consultants in District II (the district which has an annual buying list), mentioned their annual book exhibit most often. Ten, out of eleven persons interviewed, stated that they used the exhibit and accompanying list as a selection tool. Only three respondents failed to mention the Children's Catalog; seven persons stated that they used the School Library Journal. Five of the respondents, almost half, included textbook bibliographies and the AAAS Science Book List for Children in the titles

Table 5

Selection Aids Used by Selection Personnel[a]

Journals	District I						District II					
	1[b]		2		3		1		2		3	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
APPRAISAL	4	19	0	0	4	50	1	2	0	0	1	9
BOOKLIST	2	10	0	0	2	25	3	7	0	0	3	27
BOYS LIFE	1	5	1	8	0	0	0	0	0	0	0	0
BULLETIN OF THE CENTER FOR CHILDREN'S BOOKS	1	5	0	0	1	13	1	2	0	0	1	9
CHILDHOOD EDUCATION	1	5	0	0	1	13	0	0	0	0	0	0
ELEMENTARY ENGLISH	0	0	0	0	0	0	3	7	0	0	3	27
GRADE TEACHER	2	10	1	8	1	13	4	9	3	9	1	9
HORN BOOK	5	21	0	0	5	63	5	11	1	9	4	36
INSTRUCTOR	1	5	0	0	1	13	1	2	0	0	1	9
Kirkus Service	0	0	0	0	0	0	1	2	0	0	1	9
NATIONAL GEOGRAPHIC SCHOOL BULLETIN	0	0	0	0	0	0	1	2	0	0	1	9
NATURAL HISTORY	0	0	0	0	0	0	1	2	0	0	1	9
NATURE AND SCIENCE	2	10	0	0	2	25	1	2	0	0	1	9
NEW YORK TIMES BOOK REVIEW	0	0	0	0	0	0	1	2	0	0	1	9
SATURDAY REVIEW	0	0	0	0	0	0	1	2	0	0	2	18
SCHOOL LIBRARY JOURNAL	4	19	0	0	4	50	7	16	0	0	7	64
SCIENCE AND CHILDREN	3	14	1	8	2	25	1	2	0	0	1	9
SCIENCE BOOKS	3	14	0	0	3	38	3	7	0	0	3	27
SCIENCE TEACHER	2	10	0	0	2	25	2	5	0	0	2	18
SCIENTIFIC AMERICAN	1	5	0	0	1	13	0	0	0	0	0	0
TEXAS GAME AND FISH	1	5	0	0	1	13	0	0	0	0	0	0
TEXAS OUTLOOK	0	0	0	0	0	0	1	2	0	0	1	9
TEXAS PARKS AND WILDLIFE	0	0	0	0	0	0	1	2	0	0	1	9
TOP OF THE NEWS	1	5	0	0	1	13	1	2	0	0	1	9
WEEKLY READER	1	5	1	8	0	0	1	2	0	0	1	9

Table 5 (continued)

Bibliographies, Collections, Exhibits, etc.	District I						District II					
	1[b]		2		3		1		2		3	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
AAAS SCIENCE BOOK LIST FOR CHILDREN	0	0	0	0	0	0	5	11	0	0	5	45
ALA. BASIC BOOK COLLECTION FOR ELEMENTARY SCHOOLS	3	14	0	0	3	38	3	7	0	0	3	27
Arbuthnot, May Hill; Clark, Margaret; and Long, Harriet. CHILDREN'S BOOKS TOO GOOD TO MISS	1	5	0	0	1	13	0	0	0	0	0	0
Bowker. BOOKS IN PRINT	1	5	0	0	1	13	0	0	0	0	0	0
Bowker. GROWING UP WITH SCIENCE BOOKS	3	14	0	0	3	38	0	0	0	0	0	0
BOOKS ON EXHIBIT	3	14	1	8	2	25	1	2	0	0	1	9
BOOKS ON EXHIBIT catalogs	5	24	5	38	0	0	0	0	0	0	0	0
Caldecott Award titles	1	5	1	8	0	0	0	0	0	0	0	0
CHILDREN'S CATALOG series	7	33	0	0	7	88	8	18	0	0	8	72
College children's literature bibliographies	0	0	0	0	0	0	2	5	2	6	0	0
District basic book collections	1	5	0	0	1	13	1	2	0	0	1	9
District local buying list	0	0	0	0	0	0	2	5	2	6	0	0
District book exhibit	0	0	0	0	0	0	34	77	24	73	10	90
District science bibliographies	3	14	3	23	0	0	1	2	0	0	1	9
ELEMENTARY SCIENCE STUDY materials	1	5	0	0	1	13	0	0	0	0	0	0
Exhibits at professional meetings	1	5	1	8	0	0	1	2	0	0	1	9
Gaver, Mary V., ed. ELEMENTARY SCHOOL LIBRARY COLLECTION series	3	14	0	0	3	38	2	5	0	0	2	18
H.W. Wilson Checklists of sets of catalog cards	1	5	0	0	1	13	0	0	0	0	0	0
Local school book fairs	0	0	0	0	0	0	5	11	5	15	0	0
McGinniss, Dorothy. GUIDE TO SELECTION OF BOOKS FOR YOUR ELEMENTARY SCHOOL LIBRARY	0	0	0	0	0	0	1	2	0	0	1	9

Table 5 (continued)

Bibliographies, Collections, Exhibits, etc.	District I						District II					
	1[b]		2		3		1		2		3	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Public library collections	3	14	1	8	2	26	2	5	2	6	0	0
Public library collections of review copies	1	5	0	0	1	13	0	0	0	0	0	0
Public library order meetings	1	5	0	0	1	13	0	0	0	0	0	0
Publishers' catalogs	4	19	2	15	2	26	6	14	2	6	4	36
Science textbook bibliographies	4	19	3	23	1	13	13	30	8	24	5	45
r_s = .15[c]												

[a]Data collected in structured interviews with 21 members of District I professional staff and 44 members of District II professional staff.

[b]1 designates district personnel; 2 designates teachers; 3 designates librarians and consultants.

[c]Spearman rank order correlation for district (1) data only.

of selection aids they used. Four respondents mentioned the following two aids: publishers' catalogs and Horn Book.

Statistical tests--Three statistical tests were computed. First, the selection aids were ranked by district. A correlation of .15 was computed by the Spearman rank order coefficient statistic. When the responses concerning the System Book Exhibit, reported by District II personnel, were removed, a slightly higher correlation of .21 was computed.

Neither correlation appeared high enough to be significant. In order to test for significance of the correlations, a t test was computed using (1) data from both districts and (2) data from both districts excluding the responses concerning the District Book Exhibit.

Table 6

Correlation between Selection Aids Used by Selection Personnel

r_s	t	df	$T_{.05}$
.15[a]	1.04	72	1.67
.21[b]	1.46	71	1.67

[a]Correlation computed on all data from both districts.

[b]Correlation computed on data from both districts, excluding the responses concerning the District Book Exhibit from District II.

Neither the correlation between the selection aids used by the district pwesonnel including or excluding the responses from District II concerning the District Book Exhibit was significant, at the .5 per cent level.

A third test, a difference of means test, was computed to determine if the mean number of selection aids mentioned per respondent is the same for both districts.

Table 7

Selection Aids Used by Selection Personnel

	District I	District II
$\bar{X}$	3.95	2.93;[a] 2.08[b]
s	3.97	4.30; 3.14
N	21	44
$P_{.05}$	2.00	
t = .92; 2.05[c]		

[a]Mean number including responses of personnel about the District Book Exhibit.

[b]Mean number excluding responses of personnel about the District Book Exhibit.

[c]Computed t for districts (1) including responses about the District Book Exhibit and (2) excluding responses about the District Book Exhibit.

The computed t statistic was not significant when all responses from both districts were considered. In other words, no significant difference was found between the mean number of selection aids consulted by personnel in the two districts. However, if the responses concerning the use of the District Book Exhibit are subtracted from the District II responses, a significant difference is calculated.

Summary--A total of forty-nine selection aids were mentioned by the sixty-five persons who were interviewed. In District I, which does not use a local buying list, only three titles were mentioned by more than four respondents. Seven respondents named the Children's Catalog, five respondents named the Horn Book, and five respondents named the catalog to accompany Books on Exhibit.

In District II, over three-fourths of the personnel who were interviewed stated that they used the local buying list exhibit as an aid in the selection of science books. Thirteen of the respondents mentioned that they used textbook bibliographies as selection aids.

A low correlation of .15 was computed between the ranking of selection aids used in the two districts. Although there appeared to be little correlation between the aids used in the districts, there was no significant difference calculated in the mean number of selection aids used by the personnel.

Teachers in both districts used exhibits, catalogs, or bibliographies prepared for them. Nearly 75 percent of the District II teachers reported that they used the district annual book exhibit as a selection aid. The highest ranked selection aid for teachers in District I was the catalog listing titles in the Books on Exhibit collections. Five teachers mentioned these collections.

Librarians, as well as subject and library consultants, mentioned basic selection aids more often. All of the librarians interviewed in District I mentioned the Children's Catalog as a selection tool. In the interviews with eleven librarians and consultants in District II (the district which has an

annual buying list), the book exhibit, built from books on the list, was the most mentioned selection aid. Only one person failed to mention the exhibit, while 77 percent mentioned the Children's Catalog.

No basis for acceptance of the sub-hypothesis that District I personnel used more selection aids was evident in the data.

Sub-Hypothesis 3. Selection Activities

The third sub-hypothesis designed to test the main hypothesis concerns the activities used to select science books for the twelve elementary school libraries:

> Librarians and teachers who select independently are more involved in selection activities than are those personnel who use a local buying list.

Data Collection

Data were collected by three methods. First, every (1) science teacher, (2) librarian and (3) library or subject consultant was asked the question: "How much time do you spend (1) weekly _____; (2) monthly _____; (3) yearly _____ on evaluation and selection of science books for libraries?" Second, each person interviewed was asked the question: "What suggestions do you have to implement better selection of science books for your individual school?" Third, twelve selection activities were listed in the questionnaires distributed to every person who was interviewed.

As has been stated, two questionnaires from District I personnel and three questionnaires from District II personnel were not returned. From District I, two respondents did not complete the section concerning selection activities and one respondent checked each item with a minus (the sign to be placed by

those items not used). One respondent from District II did not return the section of the questionnaire concerning selection activities. Because no listing of selection activities was obtained during the structured interviews (only a narrative answer to the question: "What role do you play in the selection of science books?"), a decision was made to use the questionnaire responses--for statistical testing--by simple dividing the replies into (1) use or (2) do not use.

These replies and the results of statistical tests are discussed first. A discussion of the amount of time devoted to the selection of science books by respondents and the suggestions they gave for improving selection follows.

Analysis of Data

Selection Activities

The twelve selection activities, listed in the questionnaire, appear in the table on the following page. While the replies to the checklist may be replies concerning activities the respondents would like to perform (a supposition based upon the small amount of time alloted to selection activities by teachers and the low validity of the questionnaire replies concerning the use of selection aids), patterns common to (1) districts, (2) teachers in both districts, and (3) librarians and district science and library consultants do appear.

The selection activity ranked highest by District I personnel was "checking bibliographies prepared by subject consultants against library holdings." Fifteen out of nineteen respondents checked this item. The teachers who completed the questionnaire ranked it second. Seven teachers

Table 8

Selection Activities[a]

Activity	District I						District II					
	1		2		3		1		2		3	
	No.	%[b]	No.	%	No.	%	No.	%	No.	%	No.	%
Examining Books on Exhibit	12	63	4	36	8	1.00	3	7	0	0	3	36
Reviewing publisher's advance copies for subject committees of teachers and librarians	8	42	4	36	4	50	23	56	14	47	9	82
Attending and participating in evaluation meetings with public librarians ...	4	21	1	7	3	38	14	34	13	43	1	9
Reading reviews of new books in library selection aids and selecting books ...	14	74	6	55	8	100	31	76	20	67	11	100
Meeting with other teachers and/or librarians in your building to choose books from several new titles evaluated by other teachers or librarians	12	63	6	55	6	75	32	78	25	83	7	63
Checking textbook bibliographies against library holdings	10	53	3	27	9	86	29	71	21	70	8	73
Checking publishers' catalogs for new books and against library holdings	13	68	6	55	7	86	16	39	11	33	5	45
Examining publishers' exhibits	10	53	4	36	6	75	24	59	14	47	10	90
Visiting local bookstores	13	68	8	73	5	63	28	71	18	60	10	90

Table 8 (continued)

Activity	District I						District II					
	1		2		3		1		2		3	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Checking a system-wide approved list	7	37	4	36	3	38	38	93	27	90	11	100
Checking bibliographies prepared by subject consultants against library holdings	15	79	7	63	8	100	18	44	12	40	6	55
Visiting local public libraries to examine books	13	68	5	45	8	100	30	73	24	80	6	55
r_s = .03												

[a] 1 designates district; 2 designates teacher responses; 3 designates librarian and consultant responses.

[b] Percentage checking item in questionnaire.

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indicated that they had checked library holdings against subject bibliographies. All of the six librarians and two district consultants checked this item.

Second, fourteen of the respondents from District I indicated, on the selection activities checklist, that they "read reviews of new books in library selection aids and selected books to be ordered." All of the librarians and the two district consultants checked this item; six (over 50 percent) of the teachers indicated their participation in this activity.

Third, three items were ranked next highest: (1) "checking publishers' catalogs for new books and against library holdings," (2) visiting local bookstores, and (3) "visiting local public libraries to examine books" were each checked by thirteen of the respondents from District I.

The next highest ranked items, based upon the number of times they were checked by the respondents, were: (1) "meeting with other teachers and/or librarians in your building to choose books from several new titles evaluated by other teachers or librarians" and (2) "examining Books on Exhibit." Twelve persons checked each of these two items.

In District II (the district which uses the annual buying list and accompanying exhibit), the item ranked first by (1) all respondents, (2) teachers, and (3) librarians and consultants was "checking a system-wide approved list." The second ranked item--by all respondents and by teachers--was "meeting with other teachers and/or librarians in your building to choose books from several new titles evaluated by other teachers or librarians."

Six other activities were checked by more than 50 percent of the respondents. "Reading reviews of new books in library selection aids and

selecting books to be ordered," "visiting local public libraries to examine books," "checking textbook bibliographies against library holdings," and "visiting local bookstores" were each checked by twenty-eight respondents (above 70 percent). Lower rankings--still above 50 percent--were assigned to "examining publishers' exhibits" and "reviewing publishers' advance copies for subject committees of teachers and librarians."

Responses of teachers--The teacher respondents from District I ranked "visiting local bookstores" first. Eight, out of a possible eleven, checked this item. A slightly lower percentage of teachers checked the item "checking bibliographies prepared by subject consultants against library holdings." The two other items checked by at least half of the teachers were: (1) "meeting with other teachers and/or librarians in your building to choose books from several new titles evaluated by other teachers or librarians" and (2) "checking publishers' catalogs for new books and against library holdings."

When the replies from teachers in District II are considered, the four items ranked above 70 percent are the same four items ranked highest by all respondents. These are: (1) "meeting with other teachers and/or librarians in your building to choose books from several new titles evaluated by other teachers or librarians," (2) "checking textbook bibliographies against library holdings," (3) "checking a system-wide approved list," and (4) "visiting local public libraries to examine books."

Responses of librarians and district consultants--As anticipated, librarians and consultants from District I indicated more participation in selection activities than did the teachers. In addition to the items already mentioned, i.e., "reading reviews in selection aids," "visiting local public libraries," and "checking bibliographies prepared by subject consultants against library holdings," the librarians and consultants all checked one other item: the eight persons indicated that they "examined the Books on Exhibit collections."

Other activities in which six or more librarians or consultants indicated they participated were: (1) "checking textbook bibliographies against library holdings," (2) "checking publishers' catalogs for new books and against library holdings," (3) "examining publishers' exhibits" and (4) "meeting with other teachers and/or librarians in your building to choose books from several new titles evaluated by other teachers or librarians."

In District II, all librarians and district consultants indicated they read reviews and selected books to be ordered. Two additional items were checked by ten out of eleven respondents. The items were: "examining publishers' exhibits" and "visiting local bookstores." Over 80 percent of the librarians and consultants indicated they reviewed publishers' advance copies for subject committees of teachers and librarians (as opposed to 50 percent of the librarians and consultants in District I).

A slightly lower ranking was given the items "checking textbook bibliographies against library holdings" and "meeting with other teachers and/or librarians in your building to choose books from several new titles evaluated by other teachers or librarians" by District II personnel than by District I personnel. The difference may have been due, in part, to the larger percentage of consultative staff included in District II.

Only slightly more than half of the consultants and librarians indicated that they "checked bibliographies prepared by subject consultants against library holdings" or that they "visited local public libraries to examine books."

Statistical tests--Three statistical tests were computed. First, the selection activities were ranked by district. Then, the correlation between the two ranks was computed by Spearman's rank order coefficient. A correlation of .03 was computed.

Next, data from this ranking was used to test a hypothesis, with a t statistic, to determine if a significant correlation did exist. The computed t of .089 was not significant.

Table 9

Correlation between Selection Activities of Selection Personnel

r_s	t	df	$t_{.05}$
.03	.089	10	1.81

A third test, a difference of means test, was computed to determine if the mean number of selection activities performed per respondent is the same for both districts, against the alternate hypothesis that the mean per person was significantly greater for District I. The computed t was -.04. The null hypothesis was not rejected in favor of the alternate hypothesis that personnel from District I participated in more selection activities than did personnel from District II.

Table 10

Selection Activities Performed by District Personnel

	District I	District II
$\bar{X}$	6.89	6.97
s	5.65	7.07
N	19	41
$P_{.05}$ 2.00		
t = -.04		

Time Spent in Selection

As a second test to measure participation in selection activities, every person was asked to estimate the amount of time he spent in the selection of science books. These estimates were converted to "hours spent during the year," and a difference of means test was computed to determine if a significant difference existed between the time spent in selection by District I personnel and the time spent in selection activities by District II personnel. Respondents included the time they spent in reading reviews; reviewing books for a local buying list; visiting exhibits, bookstores, and libraries; discussing books with fellow teachers or librarians; and writing order slips. Data concerning the time allotted yearly to science book selection is presented in the following table.

Table 11

Time Allotted to Selection Activities for Science Books by Personnel

	District I	District II
$\bar{X}$	24[a]	15
s	40	30
N	21	44
$P_{.05}$ 2.00		
t = 1.02		
$\bar{X}$		
Teachers	9.7	2.7
Librarians[b]	27	38
Median		
Teachers	.33	.9
Librarians[c]	27	36

[a]All time is expressed in hours yearly.

[b]District consultants were not included (data based on time spent by six librarians in each district).

[c]Ibid.

The computed t of 1.02 is not significant. Additional data included in Table 11 show that the median time spent yearly on the selection of science books by teachers in District I was only twenty minutes. In District II it was fifty-four minutes a year. The discrepancy between mean and median time spent by teachers in the two districts illustrates the fact that in District I only seven teachers, out of thirteen, indicated they spent any time on selection. In District II, four teachers indicated they spent no time in selection and eight teachers indicated that they spent less than one hour yearly in the selection of science books.

Suggestions to Improve Selection of Science Books

The third type of data collected about selection activities were answers to the question in the structured interview: "What suggestions do you have to improve the selection of science books for your library? The answers to this question are contained in Table 12.

Basically, the answers, from both districts, involved these needs:

1. More involvement of teachers and students in the selection process.

2. Released time for teachers and librarians to read and examine new books.

3. Improved exhibits and reviews of multi-media, arranged by subject and including several reading levels, to correlate with science curricula.

The most frequent comment was: "I need more time." It appeared evident that released time--for selection activities--was the most pressing need in both districts. Regardless of the excellence of exhibits, the availability of book reviewing aids, and the establishment of selection procedures, teachers and librarians had too little time to devote to the selection of science books for libraries.

Table 12

Suggestions to Improve the Selection of Science Books[a]

District I	District II
Teachers	
1. See books or see better reviews. (3)	1. Exhibit books in every school/ time to see books. (14)
2. Teachers cooperate in defining needs and selecting books. (2)	2. Teachers cooperate in defining needs and selecting books. (2)
3. Books on many reading levels. (2)	3. Books on children's reading levels. (2)
4. Books correlated with science textbook.	4. Exhibit by subject. (2)
5. Time to visit public library, exhibits	5. Books correlated with science textbook.
6. Exhibit all media together.	6. Exhibit all media together.
	7. Books on children's intersts.
	8. Receive books more promptly.
	9. In-service training to learn how to select books.
Librarians	
1. Time to visit exhibits, libraries, work in classrooms. (4)	1. Involve teachers and students in selection (4)
2. Books correlated with science curriculum. (2)	2. More time to visit exhibits, etc. (2)
3. Involve teachers and students in selection. (2)	3. Better annotations in exhibit bibliography.
	4. Exhibit by subject.
Consultants	
1. Involve teachers in selection.	1. Involve teachers in selection.
2. Display of science books.	2. Examination center for region.
	3. Groups of teachers work with subject consultant to select books--on school time.
	4. Books on children's reading levels.

[a]Numbers in parentheses indicate number of personnel suggesting selection improvement. If no numbers are given, suggestion was recorded once.

Summary

Data to test the sub-hypothesis that personnel in District I performed more selection activities that did personnel in District II (the district which uses an annual local buying list and exhibit) were collected by three methods: (1) twelve selection activities were included in the questionnaire form, (2) a question concerning the time spent in selection activities was included in the structured interview schedule and (3) suggestions to improve selection procedures were solicited during interviews.

There was a low correlation between the selection activities performed in the two districts. District I personnel ranked highest the selection activity of checking bibliographies prepared by their science consultant against library holdings. Only one other activity, that of reading reviewing journals to locate books, was checked by more than 70 percent of the respondents. The personnel in District II ranked the checking of their local buying list number one: 93 per cent checked this activity. Two other activities, those of selecting books from reviewing journals and selecting books from titles evaluated by district personnel, were checked by more than three-fourths of the respondents.

A correlation of .03 was computed with the Spearman rank order coefficient statistic. A t test, calculated to determine if this correlation was significant, produced a t of .089. A difference of means test produced a t of -.04. On the basis of these tests, no significant correlation nor a difference in the mean number of selection activities performed per respondent was evident.

Teachers were less active in selection than were librarians and district personnel. District II teachers ranked highest the same two activities ranked highest by all personnel from their district: use of a local buying list and selecting books from titles evaluated for them by other teachers and librarians. District I teachers ranked "visiting local bookstores" and "checking bibliographies prepared by subject consultants against library holdings" highest.

All librarians and district personnel indicated that they (1) either used a local buying list or examined Books on Exhibit and (2) read reviewing journals to discover new books. Other activities ranked high by these personnel differed.

There appeared to be no significant differences in the average time spent per respondent in the selection of science books in the two districts. Data indicated that teachers spent little time in selection activities. The median time spent by teachers in District I was twenty minutes a year, whereas the median for District II teachers was fifty-four minutes.

More time to use in selection was the most often voiced need from personnel. Teachers wanted exhibits of multi-media arranged by subject. Librarians pleaded for more involvement of teachers and students.

No basis existed in the collected data for support of the hypothesis that more selection activities were performed by District I personnel than by District II personnel.

Summary

This chapter reported the results of analyses of data to test three sub-hypotheses concerning selection procedures for science books in twelve

elementary school libraries: six in District I, which had no local buying list, and six in District II, which had a local buying list.

Selection procedures for elementary school libraries in District I, which had no local buying list, were relatively simple. Every school library was allotted a yearly budget. Twice every year, librarians sent orders for books to the district library consultant, who forwarded the orders to a jobber. Books purchased with district funds were delivered directly to the school libraries from the jobber. The elementary science consultant and the school library consultant actively aided selection by the preparation of lists of basic books, by encouraging librarians and teachers to browse through new books at the consultants' offices, and by occasionally purchasing selection aids or subscriptions to reviewing journals for all elementary school libraries. The fall and spring collections of Books on Exhibit were available for librarians and teachers to visit every year. Librarians, on their own initiative, began monthly area meetings during the school year of 1968-69. These meetings were patterned after the monthly book discussions for children's librarians held at the public library.

The selection routine for District II was more organized and supervised than in District I. Books were ordered annually by school librarians with district funds. After the books were processed and cataloged in the District Elementary School Book Center, they were delivered to the schools. Although a few basic selection aids were available in school libraries, school librarians and teachers were encouraged to rely upon the annual local buying list and an exhibit of recent titles included in the list.

The annual local buying list was compiled by the District Specialist for Printed Materials, K-12, from reviews of new books by librarians, teachers, and district science consultants, together with reviews from national reviewing journals. Entries, arranged alphabetically by author, included basic bibliographic information and grade level for all titles. Brief annotations were included for recently published titles. Teachers and librarians were supplied copies of the buying list and were encouraged to visit the exhibit, open for five weeks in a central location. Titles selected by the teachers and librarians were compiled into library orders in every school.

Librarians were encouraged to use individual school funds to purchase additional books. However, books not on the annual lists were catalogued centrally after the orders selected from the annual lists and paid for with district funds--because of the use of data processing facilities to speed the processing and cataloguing of district orders.

The first sub-hypothesis was designed to determine if a significant difference existed between the selection criteria used by District I personnel and District II personnel. A high correlation of .83 was computed between the criteria enumerated by District I personnel and District II personnel. No statistically significant difference was found between the mean number of criteria mentioned by personnel in the two districts.

Both groups ranked "reading level of children" and "illustrations" as the two most mentioned items, in that order. When the responses of the fourth grade science teachers were separated from the responses of the librarians and the district library and science consultants, the same

ranking was observed. Librarians and consultants reversed the order. "Illustrations" were mentioned by more than 70 per cent; "reading level of children" by over 60 per cent.

The second sub-hypothesis was designed to determine if a significant difference existed between the number of selection aids used by District I personnel and District II personnel. No significant difference was found when the use of the "System Book Exhibit," or local buying list, for personnel in District II was included. When it was not included, a significant difference was found.

In general, personnel listed few aids. Teachers named prepared lists: textbook bibliographies, bibliographies supplied by the science consultant, publishers' catalogs (including Books on Exhibit), and local school book fairs. Librarians and district consultants were more likely to name standard selection aids.

The third sub-hypothesis was designed to determine if a significant difference existed between the number of selection activities performed by District I personnel and District II personnel. Three sets of data were collected: (1) responses to a checklist of activities in the questionnaire completed by sixty respondents, (2) responses, by all the personnel, to a question during the taped interviews concerning the amount of time they devoted to the selection of science books, and (3) suggestions to improve the selection process.

No statistically significant difference was found between the (1) number of selection activities or (2) the time spent in selection by personnel from District I and personnel from District II. District I

personnel ranked "checking a bibliography prepared by a science consultant against library holdings" first and "reading reviews in selection aids" second. District II personnel, as they did with selection aids, ranked the local buying list first, and then "meeting with other teachers to choose books from titles evaluated by other teachers and librarians" second.

The need for time to participate in selection activities was the highest ranked request by all respondents.

Based upon the findings in this chapter--that no significant differences exist between the mean number of criteria named per respondent in the two districts, that no significant difference existed in the mean number of selection aids named per respondent, and that no significant difference existed between the number of selection activities or the time spent in selection per respondent--it may be assumed that the collections are similar. Chapter VI explores the quality, recency, and curricular and student relevancy of the collections.

CHAPTER VI

ANALYSIS OF COLLECTIONS

The main hypothesis of this study is that

> as selection procedures for elementary school libraries become less centralized and standardized, the quality of collections improve because school librarians and teachers are more actively involved in selection.

To test this hypothesis, six sub-hypotheses were designed. The analyses of data collected in two school districts about three of the sub-hypotheses concerning (1) selection criteria, (2) selection aids and (3) selection activities were presented in Chapter Five. In District I, the personnel selected books from library selection aids, professional journals, occasional bibliographies prepared by the Library Consultant and the Elementary Science Consultant, and Books on Exhibit collections. The personnel in District II selected books primarily from an annual local buying list, compiled from reviews by district teachers, librarians, and consultants, and from favorable reviews in library and education journals.

Because of a premise--that the collections built by the two methods of selection should reflect the differences in procedures--the remaining three sub-hypotheses were constructed to analyze data concerning the collections in the twelve elementary school libraries, six from each school district. They are:

4. Elementary school libraries with selection by teachers and librarians who do not use a local buying list will have better collections in astronomy and earth science, when measured against a list of books from standard selection aids, than will those elementary school libraries for which books are selected from buying lists.

5. Astronomy and earth science collections selected by librarians and teachers who do not use a local buying list will differ more to reflect the curricular interests and reading abilities of their own students than will collections selected by librarians and teachers who use a local buying list.

6. Elementary school library collections selected by teachers and librarians who do not use a local buying list will contain more recently published books and they will be available for circulation earlier than in those libraries where books are chosen from a local buying list.

These three sub-hypotheses were used to analyze collections, in the subjects of astronomy and earth science, by (1) measurement of collections against a list of books composed of titles in three basic selection aids, (2) measurement of collections against curriculum bibliographies and average reading abilities of students and (3) measurement of the recency of collections. The results of the analyses of these data are contained in this chapter.

As a background or frame of reference for the analyses, basic information concerning the collections is presented first.

Collections in the Twelve Schools

A study of the table on the following page reveals that all twelve of the collections were small. Only one collection had ten volumes per student, while one collection had as few as 4.2 volumes per student. Holdings in the pure sciences (Dewey Decimal Classification number 500-599) averaged 9 per cent in District I and 11 per cent in District II.

The average percentage of astronomy and earth science titles in district science collections were also similar. Eight per cent of the science collections in District I, on the average, were composed of astronomy titles, and 14 per cent of the collections were earth science titles. In District II,

Table 13

Collections in the Twelve Schools

	District I							District II						
	$\bar{X}$	1[a]	2	3	4	5	6	$\bar{X}$	7	8	9	10	11	12
Opening Date of Library		1956	1947	1960	1953	1950?	1956		1963	1960	1959	1954	1953	1949
Number of Volumes		6957	5021	4991	6788	5292	6145		9876	5774	7456	6747	7016	11,276
Number of Students		1153	1200	580	1022	929	750		1713	833	1283	865	1040	1100
Volumes per Student	7	6	4.2	8.6	8.5	5.4	8.2	7	8	6.9	5.8	7.9	6.7	10
Science Volumes		866	386	510	681	531	497		1148	763	833	733	798	1616
Percentage of Collection	9	12	8	10	8	10	8	11	11	12	11	10	11	10
Astronomy Volumes		74	45	40	66	49	58		88	49	62	53	92	109
Percentage of Science Collection	8	9	12	8	10	9	12	7	7	6	7	7	11	6
Earth Science Volumes		119	55	62	104	106	67		191	104	124	110	130	242
Percentage of Science Collection	14	13	13	12	15	20	14	13	16	14	13	14	12	12

[a]Numerals designate schools

the percentages were approximately the same: 7 per cent of the science collections, on the average, were composed of astronomy titles, and 13 per cent of the collections were earth science titles.

Holdings of individual titles varied more among libraries than did subject percentages. Only three titles were held in common by all twelve schools. Seven additional titles were owned by eleven schools; eleven more titles were held by ten schools. There were 149 titles which were available in only one library: 96 titles in one of the six libraries in District I and 53 titles in one of the six libraries in District II. Out of a total of 506 titles (or editions) held by all twelve libraries, only 256, approximately 50 per cent, were held by at least one library in both districts.

Within districts, great variation also existed. In District I, where selection was performed without the use of a local buying list, only six individual titles were owned by all six libraries; seventeen titles were owned by five of the six libraries. In District II, twenty-eight titles were found in all six libraries; forty titles were held in five collections.

Sub-Hypothesis 4. Quality of Collections

The fourth sub-hypothesis designed to test the main hypothesis concerns the quality of collections in astronomy and the earth sciences:

> Elementary school libraries with selection by teachers and librarians who do not use a local buying list will have better collections in astronomy and earth science, when measured against a list of books from standard selection aids, than will those elementary school libraries for which books are selected from local buying lists.

Table 14

Most Frequently Held Titles

Titles Held by Twelve Schools
Blough, Glenn. Not Only For Ducks. McGraw Hill, 1954.
Crosby, Phoebe. Junior Science Book of Stars. Garrard, 1960.
Goetz, Delia. Deserts. Morrow, 1956.
Titles Held by Eleven Schools
Brindze, Ruth. The Story of Our Calendar. Vanguard, 1949.
Epstein, Samuel and Epstein, Beryl. All About the Desert. Random House, 1957.
Freeman, Mae and Freeman, Ira. Fun with Astronomy. Random House, 1953.
Schneider, Herman. Everyday Weather and How It Works. Rev. ed. McGraw Hill, 1961.
Wyler, Rose. The First Book of Weather. Watts, 1956.
Zim, Herbert S. and Baker, Robert G. Stars. Rev. ed. Golden, 1956.
Zim, Herbert S. The Sun. Morrow, 1953.
Titles Held by Ten Schools
Cormack, M.B. The First Book of Stones. Watts, 1950.
Fenton, Carroll Lane and Fenton, Mildred A. Rocks and Their Stories, Doubleday, 1951.
Gallant, Roy A. Exploring the Universe. Doubleday, 1956.
Larrick, Nancy. Rain, Hail, Sleet and Snow. Garrard, 1961.
Lauber, Patricia. Junior Science Book of Volcanoes. Garrard, 1965.
McGrath, Thomas. Clouds. Melmont, 1958.
Schloat, G. Warren. Andy's Wonderful Telescope. Scribner, 1958.
Schneider, Herman and Schneider, Nina. You Among the Stars. Scott, 1951.
White, Anne Terry. All About Great Rivers of the World. Random, 1957.
Zim, Herbert S. Comets. Morrow, 1957.
Ziner, Feenie and Thompson, Elizabeth. True Book of Time. Childrens, 1956.

Data Collection

Data were collected from the shelf lists and card catalogs of the twelve elementary school libraries which were visited, six school libraries in each district. First, a list of 265 books (261 titles) was checked against the library holdings. This checklist consisted of astronomy and earth science entries in the Children's Catalog, 1966 edition and its annual supplements for 1967, 1968, and 1969; Phase I books of the Elementary School Library Collection, 1968 edition and its supplement; and titles included in Books for Elementary School Libraries; An Initial Collection, edited by Elizabeth Hodges. In addition, all titles in the astronomy and earth science classification numbers owned by the libraries but not included in the Checklist, were jotted down. By listing the titles held by each library (1) on the "quality" Checklist of 265 volumes and (2) not on the Checklist, a complete inventory of holdings in astronomy and the earth sciences was obtained. Then, all titles held by the libraries were checked in the Book Review Digest annual volumes.

Analysis of Data

Collections: Percentages of Titles Included on the Quality Checklist and in the Book Review Digest

Slightly more than 50 per cent, on the average, of the holdings of the twelve libraries were listed on the Checklist. District I libraries had an average of 61 per cent of their collections included on the Checklist. District II libraries had an average of 56 per cent of their collections included on the Checklist. Basic information concerning the percentages of the individual collections, in the earth sciences and astronomy, which were included on the Checklist, are given in Table 15.

Table 15

Quality Checklist Titles in the Twelve Collections

		District I					
	Mean	1	2	3	4	5	6
Astronomy and Earth Science Titles		184	78	105	155	118	113
Number on Checklist		103	48	77	79	63	67
Astronomy titles		34	22	30	32	23	30
Earth Sciences titles		69	26	47	47	40	37
Percentage on Checklist	61	70	62	73	50	53	59
Percentage of Checklist in Library	27	39	14	29	30	24	25
Number Not in Book Review Digest		30	10	6	21	26	12
Astronomy titles		13	4	1	10	8	7
Earth Sciences titles		17	6	5	11	18	5
Percentage	14	16	13	6	14	22	11

Table 15 (continued)

		District II					
	Mean	7	8	9	10	11	12
Astronomy and Earth Science Titles		208	131	161	136	195	228
Number on Checklist		124	77	90	82	100	111
Astronomy titles		52	27	32	31	37	38
Earth Sciences titles		72	50	58	51	63	83
Percentage on Checklist	56	60	59	56	60	51	49
Percentage of Checklist in Library	37	47	29	34	31	38	42
Number Not in Book Review Digest		27	18	27	22	30	39
Astronomy titles		8	3	13	4	9	10
Earth Sciences titles		19	15	14	18	21	29
Percentage	14	13	14	11	16	15	17

In order to test the significance of the percentage of titles from the quality Checklist held in the libraries, a weight was given to each title held. A title listed in one of the three selection aids received a weight of one, a title listed in two aids received a weight of two, and a title listed in all three selection aids received a weight of three. Data concerning the mean and standard deviation from the mean of all twelve collections are included in Table 16.

In addition to the 205 Checklist titles included in the twelve collections, there were 180 titles held by libraries and included in the Book Review Digest. Of these 180 titles, 56 were owned by only one library. The number of titles in the collections of either District I or District II were similar. There were 49 titles which were held in District I collections only; 61 titles were in District II collections. The remaining 70 titles were owned by libraries in both districts.

These titles were assigned a weight of one--so that the weight scale was increased to a range of 0-4. A title included in neither one of the three selection aids used to compile the Checklist nor the Book Review Digest was assigned a weight of zero. A title included in all three selection aids and the Book Review Digest was assigned a weight of four. Data concerning the mean and standard deviation from the mean of all twelve collections are included in Table 17.

The remaining 121 titles held by the twelve libraries were neither listed in the Checklist nor in the Book Review Digest. Fifty per cent of these titles were held in only one library. Of these titles, fifty-one were held by libraries in District I and forty-eight were held by libraries in District II. There were twenty-two titles owned by libraries in both districts.

Table 16

Titles on the Quality Checklist:
Means and Standard Deviations

School	Number of Books	Number on Checklist	Mean	Standard Deviation
1	184	103	.9022	.9814
2	78	48	1.0385	1.0375
3	105	77	1.3238	1.0786
4	155	79	.8452	1.0138
5	118	63	.9153	1.0425
6	113	67	1.0531	1.0843
7	208	124	1.0240	1.0376
8	131	77	1.0229	1.0486
9	161	90	.9503	1.0296
10	136	82	1.0074	1.0074
11	195	100	.8308	.9829
12	228	111	.7807	.9642

Table 17

Titles on the Quality Checklist and in the Book Review Digest:
Means and Standard Deviations

School	Number of Books	Mean	Standard Deviation
1	184	1.7120	1.1868
2	78	1.9103	1.2080
3	105	2.2286	1.1950
4	155	1.6903	1.1764
5	118	1.6525	1.2902
6	113	1.9469	1.2236
7	208	1.8750	1.2094
8	131	1.8702	1.2241
9	161	1.7826	1.2078
10	136	1.8309	1.2145
11	195	1.6667	1.1695
12	228	1.6009	1.1623

Statistical Tests--Calculations of two-way analyses of variance were made on percentages of collections included in (1) the Checklist and/or (2) the Book Review Digest. The two factors included in the analyses were the two districts and the three economic levels of the twelve schools: low, medium, and high. Interaction, while not significant in itself, was added to the residual. Appropriate calculations and the results are reported in the following tables.

Table 18

Collections: Analysis of Variance of Percentages of Titles Included on the Quality Checklist

	Sum of Squares	Degrees of Freedom	Mean Squares	F ratio
District Means	.01779	1, 8	.01779	F .95
Economic Level Means	.05609	2, 8	.02805	F 1.51
Residual and Interaction	.14852	8	.01856	
			$F_{.05}(1,8)$	5.32
			$F_{.05}(2,8)$	4.46

Economic Level and District Means.

	Low Economic Level	Average Economic Level	High Economic Level	
District I	.97690	.87370	1.18845	1.01302
District II	1.01515	.89055	.90235	.93602
	.99602	.88212	1.04540	

Table 19

Collections: Analysis of Variance of Percentages of Titles Included on the Quality Checklist and in the Book Review Digest

	Sum of Squares	Degrees of Freedom	Mean Squares	F ratio
District Means	.02204	1, 8	.02204	.79
Economic Level Means	.07999	2, 8	.03999	1.43
Residual and Interaction	.22385	8	.02798	
			$F_{.05}(1,8)$	5.32
			$F_{.05}(2,8)$	4.46

Economic Levels and District Means

	Low Economic Level	Average Economic Level	High Economic Level	
District I	1.78140	1.70115	2.08775	1.85677
District II	1.85055	1.72465	1.73795	1.77105
	1.81597	1.71290	1.91285	

In both tests, the observed F does not fall within the critical region, i.e., numbers larger than 5.32 or 4.46. The hypothesis of no significant difference of means between districts and economic levels may be accepted. In other words, there appeared to be no bases for acceptance that the astronomy and earth science collections in District I were superior to the collections in District II, which used a local buying list.

Percentage of Quality Checklist Included in Collections

Because collections were small, only two libraries held more than 40 per cent of the Checklist titles in their collections. The average percentage

of the Checklist titles in District I libraries was 27; in District II libraries it was 37 per cent.

Almost 25 per cent of the titles included in the Checklist was not owned by any of the twelve libraries. An additional thirty titles on the Checklist were each included in only one of the twelve collections.. Of these books, twenty-three were owned by District I libraries and seven were owned by District II libraries.

Only twenty-eight titles were listed on all three selection aids used to compile the quality list.[1] When the arithmetic means were calculated, it was found that, on the average, District I schools owned three copies of each title and District II schools owned 3.6 copies per title.

Uniformity of Collections

Slightly more uniformity was evident in the collections of District II, which used a buying list, than in District I. In Figure 5, the titles held in common by one, two, three, four, five and six libraries in each district are shown.

With the exception of the title, Not Only For Ducks, all of the books held in the six collections in District I were listed in at least one basic selection aid and the Book Review Digest. Two titles (Deserts, written by Goetz, and Stars, written by Zim) were included in all three basic selection aids and the Book Review Digest.

The number of titles found in five libraries in District I was three times the number owned by all six of the libraries. There were eighteen titles common to five libraries. Only one title, Rocks and Gems, by Heavilin, was located in neither the Checklist nor the Book Review Digest. Two titles

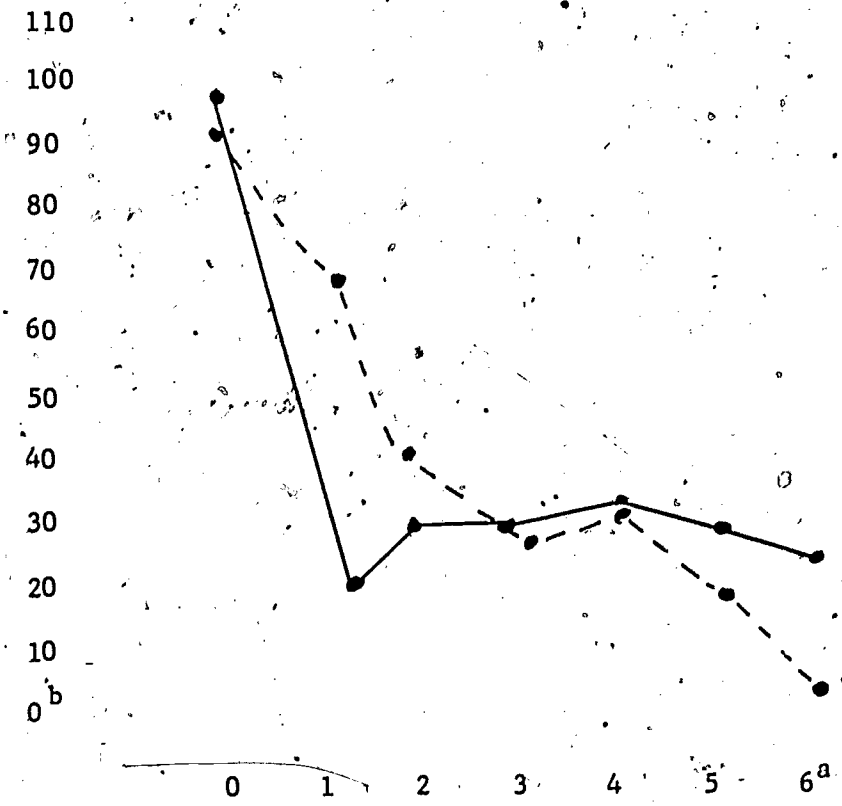

Figure 5. Quality Checklist Titles Held in Common by Libraries

---------- District I

———— District II

[a]Number of schools holding titles in common.

[b]Number of titles held in common.

were listed in the Book Review Digest, but were not listed in the Checklist. An additional six of the titles were listed in (1) all three basic selection aids used to compile the Checklist and (2) the Book Review Digest. The other nine titles were all listed in the Checklist. In fact, fifteen of the titles were listed in the Children's Catalog, 1966 edition or its 1967 supplement.

Of the twenty-eight titles owned by all six libraries in District II, four were listed only in the Book Review Digest. One title, The True Book of Time, was not included in any aid. Six of the titles were listed in all three basic selection aids used to construct the Checklist and in the Book Review Digest. All of the remaining titles were included in one or two of the basic selection aids; nineteen titles were listed in the Children's Catalog, 1966 edition.

There were forty-five titles owned by five of the libraries. Of these, thirty-one were entries on the Checklist. There were six titles included in neither the Checklist nor the Book Review Digest. Eight of the titles were included in the Book Review Digest only; six titles were included in all three selection aids and the Book Review Digest. Slightly more than half of the entries were in the Children's Catalog, 1966 edition and supplements.

Summary

Astronomy and earth science collections in twelve elementary school libraries, six in District I and six in District II, were analyzed in relation to a checklist of 265 books (261 titles). The Checklist was compiled from entries, in the two subject areas, in the Children's Catalog,

1966 edition and supplements, the Elementary School Library Collection, 1968 edition and supplement, and Books for Elementary School Libraries, An Initial Collection. In addition, all astronomy and earth science titles, which were owned by the libraries, were compared with entries in the annual volumes of the Book Review Digest.

Slightly more than 50 per cent, on the average, of the holdings of the twelve libraries were listed on the Checklist. District I libraries had an average of 61 per cent of their collections included on the Checklist. District II libraries had an average of 56 per cent of their collections included on the Checklist.

Quite similar averages were also computed for the titles in the collections located in either the Checklist or the Book Review Digest. Both districts had an average of 86 per cent of the collections included in one or both of the lists: the Checklist and the Book Review Digest.

Calculations of two-way analyses of variance on percentages of collections included in (1) the Checklist and/or (2) the Book Review Digest are not significant, at the 5 per cent level, when districts or economic levels are considered.

Because collections were small, only two libraries held more than 40 per cent of the Checklist titles in their collections. The average percentage of the Checklist titles in District I libraries was 27; in District II libraries it was 37 per cent.

In fact, almost one-fourth of the titles included in the Checklist was not owned by a single library. Another 12 per cent of the titles were located in one collection only. Two titles, listed on the Checklist, were held in common by all twelve libraries.

Slightly more uniformity was evident in the collections of District II, which uses a local buying list, than in District I. However, neither district had adequate collections when measured against the Checklist. There appeared to be no bases for acceptance of the hypothesis that astronomy and the earth science collections in District I were superior to the collections in District II, which used a local buying list.

Sub-Hypothesis 5. Correlations Between Collections and School Needs

The fifth sub-hypothesis, designed to test the main hypothesis, concerns the adequacy of the collections, in the areas of astronomy and the earth sciences, for curricular interests and student reading abilities:

> Earth science and astronomy collections selected by librarians and teachers who do not use a local buying list will differ more to reflect the curricular interests and reading abilities of their own students than will collections selected by librarians and teachers who use a local buying list.

Separate data were assembled for the two divisions: curriculum correlated books and book/student reading levels. They will be discussed independently in the following paragraphs.

Curriculum-Correlated Books

As was explained in Chapter III, "Procedures of Investigation," two different approaches were taken to measure the extent to which the collections provided materials suitable for the individual school. The first measure was simply to compare collections, in the twelve school libraries, with the four lists of books suggested as curriculum-correlated materials. It was reasoned that as minimum core collections, libraries should own the books recommended in textbooks, curriculum bulletins and textbook-correlated

lists. Although the use of textbook-correlated books fails to consider the individual school interests within districts, a decision was made to stop at the school system level in this regard.

Data Collection--Titles from the four lists were combined into a checklist, against which the holdings of the twelve libraries were tallied. First, astronomy and earth science titles were taken from the bibliographies in the fourth grade science textbook used in District I. These titles were designated as List 1. The Elementary Science Consultant, District I, had compiled a list of useful books for elementary science teachers. Appropriate titles taken from it were designated as List 2.

Titles from two bibliographies compiled for District II personnel were also included. A revised curriculum guide for the fourth grade science teachers, with a few titles, was issued in 1969. Titles in astronomy and the earth sciences were designated as List 3. And finally, the 1969 Elementary Library Book Exhibit Bibliography contained titles correlated with the newly adopted science textbook for District II. Appropriate titles from this local buying list were designated as List 4.

Analysis of Data--The 121 titles (some titles were on more than one list) were arranged into two frequency tables. First, a table was constructed which showed the number of titles held by each school, and each district. Then, a table displaying the percentage of books on the lists held by each library, and district, was constructed. These two tables are given on the following page. On all four lists, District II schools held larger percentages of the books than did District I schools.

Table 20

Books on Curriculum-Correlated Lists Held by Libraries

District	List	Schools													Total Number
		1	2	3	4	5	6	7	8	9	10	11	12	0	
I	1	15	8	13	16	10	16	18	16	16	15	21	20	9	41
I	2	3	1	3	2	3	5	3	3	2	2	3	2	7	14
II	3	34	14	29	23	24	17	42	32	33	28	40	47	6	79
II	4	9	4	11	9	7	6	14	9	10	8	9	10	0	15
I		18	9	16	18	12	19	21	18	18	17	23	21	16	53
II		35	14	31	24	25	17	43	32	33	29	41	48	6	80
	None	2	5	2	3	0	2	2	2	1	1	2	4	0	
	Total Number	51	25	45	41	33	33	61	46	47	44	58	68		

Table 21

Percentages of Books on Lists Held by Libraries

District	List	Schools												
		X	1	2	3	4	5	6	X	7	8	9	10	11	12
I	1	32	37	19	32	39	24	39	43	44	39	39	37	51	49
I	2	20	21	07	21	14	21	36	23	21	21	14	14	21	50
II	3	31	43	18	37	29	30	21	47	53	40	42	35	51	59
II	4	51	60	27	73	60	47	40	67	93	60	67	53	60	67
I		29	34	17	30	34	23	36	44	54	40	41	36	51	60
II		30	44	17	39	30	31	21	47	40	34	34	32	43	40

Reading Level of Students Versus Reading Level of Books

The second part of the analysis for Sub-hypothesis 5 concerned the reading ability of fourth grade students in the twelve schools, and the reading level of library books, in the subjects of astronomy and earth sciences, in the twelve school libraries. If, as hypothesized, teachers and librarians in District I were more knowledgeable about student needs and selected books based on this knowledge, there should be a higher correlation between reading levels of students and books in District I than in District II. In other words, libraries in District I should contain more books with reading levels on student reading levels.

Data Collection

Scores on reading tests, either the California Achievement Tests or the Iowa Tests of Basic Skills, taken in the spring of 1969 by students in the fourth grade in 1969-70, were acquired from administrative records for the twelve schools which were investigated. Next, reading levels were assigned all books in the twelve library collections in the areas of astronomy and the earth sciences. Only three reading levels were used: 2, 4, and 6.

Levels were used which had been assigned the books by the three selection aids used to compile the Checklist, by reviews in the Book Review Digest, or--for the titles in neither of the aids--by the libraries themselves. The highest level given a book was used. A book rated K-3 (for children reading on kindergarten through grade three) was given a "2" rating. A book rated 2-4 or 3-5 (for children reading on grade levels two through four or three through five) was given a "4" rating. A book given a 4-6, 5-7 or higher rating was assigned a "6" level.

No attempt was made to be more specific; it was realized that this lack of exact measurement of reading level might influence the results of any analysis. However, there was frequent disagreement on reading levels even among selection aids. Too, readability formuli produce varying results. The time consuming task of using a readability formula on all titles would have produced reading levels open to question.

Analysis of Data

Information concerning the student reading scores will be presented first. Then, the data concerning the reading levels of the books are given. Finally, the correlation between the reading levels of books and the reading scores of students is described.

Reading Level of Students--First, a two-way analysis of variance was computed. The two factors included were (1) the two districts and (2) the three economic levels of the twelve schools: low, medium, and high. Appropriate calculations and the results are reported in the following table.

Table 22

Reading Scores of Students: Analysis of Variance Between Districts and Economic Levels

	Sum of Squares	Degrees of Freedom	Mean Squares	F ratio
District Means	.00441	1, 8	.00441	.001
Economic Level Means	1.66580	2, 8	.83290	3.24
Residual and Interaction	2.07882	8	.25980	
			$F_{.05}(1,8)$	5.32
			$F_{.05}(2,8)$	4.46

Table 22 (continued)

Economic Levels and District Means				
	Low Economic Level	Average Economic Level	High Economic Level	
District I	3.77	3.92	4.11	3.93
District II	3.26	3.90	4.74	3.97
	3.52	3.91	4.43	

Because the observed F, in both cases, does not fall within the critical region, i.e., numbers larger than 5.32 and 4.46, the hypothesis of no difference in means may be accepted. However, the variation in means within the cells is interesting, as seen in the second part of the table. The average reading scores do follow a definite pattern in both districts: the highest scores are found in the higher economic level schools, the next highest scores are found in the middle income schools, and the lowest scores are found in the lowest economic level schools. If books were selected with the student reading needs in view, the mean reading levels of the books should follow a similar trend.

Reading Level of Astronomy and Earth Science Books--Now that the variation in the reading scores of the fourth grade students, in the twelve elementary schools in 1969-70, have been explored, the reading levels of the astronomy and earth science books will be examined. A two-way analysis of variance was computed. Again, the two factors of (1) districts and (2) economic levels were used. The calculations and the results are given in the following table.

Table 23

Reading Levels of Books: Analysis of Variance Between Districts and Economic Levels

	Sum of Squares	Degree of Freedom	Mean Squares	F. ratio
District Means	.01210	1, 8	.01210	F .027
Economic Level Means	.07828	2, 8	.03914	F .088
Residual and Interaction	.35367	8	.04420	

$F_{.05}(1,8)$ 5.32

$F_{.05}(2,8)$ 4.46

Economic Levels and District Means

	Low Economic Level	Average Economic Level	High Economic Level	
District I	4.40	4.49	4.72	4.53
District II	4.47	4.43	4.51	4.47
	4.43	4.46	4.62	

Again, as with the two-way analysis of variance tests on the reading scores of students, no significant difference was found between means of (1) districts and (2) economic levels. The null hypothesis of no significant difference in means is accepted. However, the cells for the factorial design do appear to show that as economic level increases, there is a slight increase in the mean reading level of the books.

Correlation Between Student Reading Scores and Reading Levels of Books--Because there was the same trend evident with both the student reading scores and reading levels of books--levels increased as economic levels increased--the data were tested for correlation. They were ranked by (1) all twelve schools and by (2) district. The data are presented in the following two tables.

Table 24

Rank Order Correlation of Reading Scores of Students and Reading Level of Books in All Schools

School	Students Reading Scores[a]	Rank	Book Reading Level	Rank	D	D^2
1	3.72	6	4.39	2	4	16
2	3.49	4	4.74	11	7	49
3	4.32	9	4.55	9	0	0
4	4.12	8	4.58	10	2	4
5	2.63	1	4.05	1	0	0
6	3.90	7	4.89	12	5	25
7	4.93	12	4.49	7	5	25
8	3.02	2	4.473	6	4	16
9	3.23	3	4.42	3	0	0
10	3.51	5	4.470	5	0	0
11	4.58	11	4.43	4	7	49
12	4.57	10	4.53	8	2	4
						$\Sigma D^2 = 188$

$$r_s = 1 - \frac{6.188}{12(143)} = 1 - .656 = .344$$

[a] Mean score for all third grade students, 1969.

Table 25

Rank Order Correlation of Reading Scores of Students and Reading Level of Books Within Districts

	School	Rank (Students)	Rank (Books)	D	D^2
District I	1	3	2	1	1
	2	2	5	3	9
	3	6	3	3	9
	4	5	4	1	1
	5	1	1	0	0
	6	4	6	2	4
					$\Sigma D^2 = 24$
District II	7	6	5	1	1
	8	1	4	3	9
	9	2	1	1	1
	10	3	3	0	0
	11	5	2	3	9
	12	4	6	2	4
					$\Sigma D^2 = 24$

$$r_s = 1 - \frac{6 \cdot 24}{6(35)} = 1 - .685 = .315$$

Next, a t test was computed to determine if, at the 5 per cent level, a significant pattern of association between the student reading scores and the reading level of the books was present. The computed t statistic for correlation between the reading scores and reading level of books in all schools is given on next page.

Table 26

Correlation Between Reading Scores of Students and Reading Level of Books in All Schools

r_s	t	df	$t_{.05}$
.34	1.13	10	1.81

No t test was computed for significance of the correlation between student reading scores and reading levels of books within districts because the correlation was lower than that computed for the twelve schools. No significant pattern of correlation was found to exist, at least for these samples from the two populations.

There appeared to be no evidence to support a hypothesis that astronomy and earth science collections in District I reflected the reading abilities of their students more than the collections in District II, which used a local buying list. Indeed, the correlation ratio between the reading scores and book reading levels was exactly the same in both districts: .311.

Summary

The data presented in this section have concerned two criteria of good school library service: supporting a curriculum with useful library books and providing books on the reading level of the children in a particular school. According to this sub-hypothesis, the libraries in District I should have collections which reflect curricular interests and reading abilities of students significantly more than did those in District II, which has a local buying list.

The first criterion, support of a curriculum with useful library books, was tested by the construction of tables to compare the holdings of the twelve libraries in the two Districts, on titles on four lists. These four lists, two from each district, were composed of titles found either in a (1) fourth grade science textbook used in District I, (2) in a bibliography prepared by a science consultant in District I, (3) in a curriculum bulletin prepared for fourth grade science teachers in District II or (4) the District II local buying list, 1969. On all four lists, District II schools held larger percentages of the books than did District I schools.

Next, differences in reading test scores between the two districts and in reading levels of astronomy and earth science titles held by the libraries, and the correlation between the reading test scores and the reading levels of the books were calculated. No significant differences were found between student reading scores and reading levels of books when districts and economic levels were considered. Indeed, reading scores and book reading levels appeared to both advance with the rise in economic levels. However, tests of correlation between the two measures produced low correlations of .31 for both districts.

There appears to be no foundation for the validity of sub-hypothesis 5. District II collections contained larger percentages of the books on all four curriculum lists than District I collections. Astronomy and earth science collections in the two districts were equally correlated with student reading abilities, as measured by reading test scores.

Sub-Hypothesis 6. Recency of Collections

The sixth, and final, sub-hypothesis designed to test the main hypothesis concerns the recency of collections:

> Elementary school library collections, with books selected by teachers and librarians who do not use a local buying list, will contain more recently published books and they will be available for circulation earlier than in those libraries where books are chosen from a local buying list.

Three different groups of data were used in the analysis of this sub-hypothesis. These groups were: (1) mean publication dates for astronomy and earth science titles in the twelve elementary school libraries which were visited, (2) mean time elapsing from the date that books were ordered until they were available for circulation in the twelve libraries, and (3) mean publication date of all the books in the 1968-69 orders of the twelve libraries. The collection and analysis of each type of data is described in separate sections.

Mean Publication Dates of Astronomy and Earth Science Collections

The first data analyzed to test sub-hypothesis 6 were the publication dates of the astronomy and earth science books in the twelve elementary school library collections. The number of titles held by the libraries in astronomy and the earth sciences, as well as the mean and the standard deviation of publication dates for each collection are given in the following table.

In order to test for significance of differences between the mean publication date for titles in District I collections and District II collections, a two-way analysis of variance was calculated. The two factors

Table 27

Publication Dates of Collections: Means and Standard Deviations

School	Number of Books[a]	Mean Publication Date[b]	Standard Deviation
1	184	59.168	5.933
2	78	57.064	7.157
3	105	57.905	4.617
4	155	57.948	5.713
5	118	59.059	6.875
6	113	57.283	4.806
7	208	59.952	4.471
8	131	58.718	5.522
9	161	59.534	5.427
10	136	58.949	5.470
11	195	59.262	4.933
12	228	58.592	5.455

[a] Astronomy and earth science titles.

[b] Read dates as 1959, 1958, 1957, etc.

included in the analysis were the two districts and the three economic levels of the twelve schools: low, medium, and high. Interaction, while not significant in itself, was added to the residual. Appropriate calculations and the results are reported in the following table.

The observed F, when considering the means between the districts, is significant at the 5 per cent level. The average publication data for books in District II libraries was more than a year later than in District I libraries. Differences in economic levels were slight.

Mean Time Elapsing From the Date That Books Were Ordered Until They Were Available For Circulation In the Libraries

Several writers have suggested that one of the problems inherent in local buying lists is the time elapsing between the date the local list is prepared

Table 28

Analysis of Variance Between Districts and Economic Levels

	Sum of Squares	Degrees of Freedom	Mean Squares	F ratio
District Means	3.60803	1, 8	3.60803	6.52
Economic Level Means	.77155	2, 8	.38578	.069
Residual and Interaction	4.42536	8	.55317	
			$F_{.05}(1,8)$	5.32
			$F_{.05}(2,8)$	4.46

Economic Levels and District Means

	Low Economic Level	Average Economic Level	High Economic Level	
District I	58.061[a]	58.56	57.59	58.07
District II	58.83	59.40	59.27	59.17
	58.45	58.98	58.43	

[a]Read as 1958.06, etc.

and the date the books are ready to circulate in the libraries. Consequently, the second item of interest in this section is the difference in the time it took for books to be available in District I libraries, which had no local buying list and where individual school librarians processed and cataloged books, and in District II libraries, which had a buying list and centralized processing and cataloging.

Acquisition data were available in the twelve libraries for the following school years: 1964-65, 1965-66, 1966-67, 1967-68, and 1968-69. As has been

previously described, the acquisition procedures for orders purchased with District I funds were simple. Books were delivered directly to the schools by the jobber. Cataloging and physical processing were completed in the schools by the librarians, sometimes with the assistance of clerks. Wilson catalog cards or Library Journal kits were often used. However, bookkeeping routines for books purchased with federal funds--ESEA Titles I and II, and NDEA, Titles I, III, and IV--necessitated a permanent record of holdings. In 1965, a Library Processing Center was established in the District Service Center to process and to catalog books purchased with federal funds. Wilson catalog cards, ordered by the school librarians to be delivered to the Center, or LJ kits were used. The processed books, catalog cards, and two cards for the shelf list supplying fund information were delivered to the individual schools. A third copy of the card which recorded fund information was kept at the Library Processing Center.[2]

Besides library books ordered by elementary, junior high and senior high school librarians with federal funds, supplementary books ordered with federal funds for classrooms and books ordered for parochial schools with federal funds, core collections for new primary libraries and new schools on all levels were processed here. For these latter orders, professional librarians were employed during the summer.

In District II, individual order slips were sent to the Library Processing Center when books were ordered. By the time the books arrived, usually in the summer following the spring order, catalog cards, book pockets, and book cards were ready to be placed in the books. The books were stamped, if purchased with federal funds, the call numbers were marked on the spines, and plastic book jackets were placed on the books. Then, in groups of fifty

of sixty books, parts of orders were delivered to the individual schools as they were completed.

Titles purchased directly (with PTA, book fair or activity fee funds) were not included in the measurement of time. Librarians in the three District II schools which did have individual funds on a regular basis, schools 7, 11, and 12, reported in interviews that they frequently used local jobbers because they were prompt in delivery, sometimes as fast as two weeks.[3]

Table 29

Mean Time Elapsing From the Date that Books Were Ordered Until They Were Available for Circulation in the Libraries

	District I	District II
$\bar{X}$	9 months	13 months
s	6.40 months	2.24 months
N	79 orders	32 orders
$P_{.05}$ 1.96		
z = -3.60		

A difference of means test was computed on the elapsed time between the dates on which books were ordered and (1) accessioned in District I libraries or (2) received in District II libraries. With a significance level of 5 per cent, the hypothesis of no difference in means was rejected, against the alternate hypothesis that a significant difference existed in the time elapsing, in the two districts, between orders and delivery. Based upon these data, it was possible to say that District I libraries received books quicker than did District II libraries.

Even after books were delivered to District II libraries, catalog cards had to be filed, as well as books stamped with ownership stamp and shelved. In District I, books had to have cards prepared, as well as complete physical processing. Several orders in three District I schools were not included in the calculations because they had not been unpacked (approximately three months after delivery).

Publication Dates of Books Ordered in 1968-69

The third test of the sub-hypothesis concerning recency of collections dealt with the publication dates of books on recent orders. One of the criticisms of local buying lists has been the amount of time to review books, place them on buying lists, obtain them for displays, etc. It has been suggested that use of standard selection aids would enable recently published books to be available to users, in the libraries, sooner than selection from local buying lists.

With the exception of titles correlated with special subject areas, the books on the District II local buying list were all published during the two years prior to the date of the list: 1967 and 1968 books were included in the Spring, 1969 list and the accompanying exhibit.

Because older science books, correlated with the newly adopted textbook, were included in this list, a sample of all books ordered from the six schools in District II, as well as District I, was drawn. Every tenth title in the twelve orders was drawn to complete the sample. A total of 189 books from the orders of the six schools in District I and 206 books from orders of the six schools in District II were used to calculate a difference of means test to determine, at the 5 per cent level, if there was a significant

difference in the recency of the publication dates of the books which were ordered. Data are given in Table 30.

Table 30

Recency of Titles on 1969 Orders

	District I	District II
$\bar{X}$	6[a]	2
s	6.42	2.68
N	189	206
$P_{.05}$ 1.96		
z = 8.33		

[a]Numbers are years: average publication date of titles purchased in District I was 1963; in District II, 1967.

In this test, the z was 8.33; therefore the alternate hypothesis that the means were not equal was accepted. Definitely more recent books were ordered by District II libraries, in the twelve schools investigated.

Summary

Three tests were made of the sub-hypothesis that, in school library collections built without the use of a local buying list, more recent books would be available. A significant difference between the collections in District I and District II was computed for all three tests. First, astronomy and earth science titles were found to be slightly more than a year, on the average, more recent in District II collections.

The second test showed a significant difference in the mean time elapsing between the dates on which books were ordered and available in the libraries for users. Based upon the data collected, it was possible to say that District I orders were received in their libraries quicker than were the processed and cataloged books in the District II libraries.

The third test was designed to determine if a significant difference, at the 5 per cent level, existed between the publication dates of the books ordered in the two districts in 1969. Books purchased by District II libraries, at least in the sample drawn, appeared to be significantly more recent than those purchased for District I schools.

There appeared to be basis for support of Sub-hypothesis 6 in only one respect. Orders were received quicker in District I. In fact, it appeared that District II collections were slightly more recent, and that the orders from District II contained titles with more recent publication dates than District I orders.

Summary

The three sub-hypotheses tested in this chapter were designed to determine if, based upon samples of twelve collections in astronomy and earth science titles and on orders from two districts, differences existed in the quality, adequacy, and recency of the collections. It was hypothesized that the collections, in District I, built by librarians and teachers without the use of a local buying list, would contain more books listed on a quality checklist, would be more adequate for the science curriculum and the reading needs of their students, and would contain more recent books, than would six collections in District II, which uses a local buying list.

With the exception of the recency of collections, the differences between the two districts were slight. Collections were small in all the libraries. Slightly more than 50 per cent, on the average, of the holdings of the twelve libraries were listed on the Checklist. Almost 25 per cent of the Checklist of 265 books (261 titles) was not owned by a single library; another 12 per cent of the titles was found in only one of the twelve collections. Of the over 500 titles held by the twelve libraries, approximately 100, around fifty from each district, were listed in neither the Checklist nor the annual volumes of the Book Review Digest.

District II collections held larger percentages of the titles recommended for correlation with the fourth grade science textbook than did District I collections. A low correlation of .31 was calculated for the relationship between student reading scores and reading levels of astronomy and earth science titles from both districts.

Data concerning the recency of collections, the speed with which orders arrived in the libraries, and the recency of the publication dates of books listed on 1969 orders all indicated that: (1) collections were slightly more recent in District II libraries, (2) the titles in 1969 orders were more recent in District II orders and (3) books were available much sooner in District I libraries.

FOOTNOTES FOR CHAPTER VI

[1]Titles are listed in Table 1.

[2]Orders processed centrally were included in these calculations.

[3]Orders purchased with individual school funds were not included in these calculations.

CHAPTER VII

SUMMARY AND CONCLUSIONS

This final chapter summarizes the investigation of selection procedures of science books for elementary school libraries, reported in the previous pages. Following the summary, conclusions based upon the findings are discussed, limitations of the study are noted, and suggestions for further research are advanced.

Summary of Procedures and Analyses

The Problem

The decade of the sixties was an era of marked growth in the number of elementary school libraries. Collections in existing and new libraries were augmented with larger local budgets and with federal funds, available under Titles I, II, and III, of the Elementary and Secondary School Act of 1965, and Title III, the National Defense and Education Act.

Publishing of books for children also increased dramatically. By 1970, there were over 35,000 children's books in print, with an average of 2,000 new titles published annually.

Unfortunately, the number of adequately trained librarians has not risen as rapidly as have budgets and publishing. Librarians with master's degrees are still scarce--especially in elementary schools.

These changing circumstances: an exponential growth in the number of elementary school libraries, increased funds for library budgets, an enlarged output of children's books, and a shortage of professional librarians have created a heavy overload on the already inadequate selection process.

In an ideal situation, librarians and teachers apply rigorous selection criteria to new books--which they identify in national selection media, see at book exhibits, and receive from publishers for examination. Their decisions to add to collections are based upon a selection policy built upon the needs of the existing collection, the school curriculum, and the interests and abilities of students.

All too often, however, the necessary time to review books, a knowledge of selection criteria, or an awareness and interest in the needs of the curriculum and students may be lacking. Now--with more libraries and more books--even less adequate selection may take place.

In the past, librarians and teachers relied heavily upon national selection media for reviews of books. While the number of reviews in these media have increased, only one selection aid, the School Library Journal, now approaches a coverage of all new books published each year.

One of the instruments used to augment the national reviewing media has been the local buying list. These state or school district lists were originated to guide untrained librarians and teachers in book selection. Today, they aid programming for acquisitions, processing, and cataloging for large city schools.

Local buying lists may have weaknesses, however. Their use has been questioned on the grounds that they cannot contain books for a variety of student needs, that they may contain inadequate information about titles for selection purposes, and that the time involved in compiling lists may cause them to be outdated before they are used by selection personnel.

Research Studies Relating to the Problem

Five pertinent research studies concerning selection procedures in libraries tend to show that (1) use of a wide range of selection aids is limited, (2) there is inadequate involvement of teachers in selection processes, and (3) a better procedure for selection needs to be constructed.

McCartney surveyed the elementary schools of California in 1959 to investigate selection procedures for instructional materials.[1] She found that larger districts were more likely to have books available for examination and to have committee responsibility for evaluation and selection, while smaller districts reported more participation by teachers and librarians in selection.

Sheriff surveyed sixty Pennsylvania school districts in 1965 to determine if the quality of library book selection improved with the presence of a centralized library and a librarian.[2] He found statistically significant differences, in the use of book selection aids, between (1) schools with centralized libraries and those with only classroom libraries, and (2) schools with full-time librarians and schools without full-time librarians.

The third study, reported by Shearer, was concerned with the use of a local buying list for the Detroit Public Library.[3] He found that the titles included in the Detroit Home Reading List differed by more than 15 per cent from the titles included in Booklist and the Bulletin of the Virginia Kirkus Service -- and thus accepted his hypothesis that a local list was useful. Nevertheless, he questioned the expense of a local list, and asked if selection based on national reviewing media and examination of publishers' copies by branch personnel might be preferable.

Two other studies, those of Jones and Schmitz, investigated science collections in fifty-four Michigan high school libraries during the school years, 1960-62.[4,5] They found collections generally inadequate. They reported that librarians preferred standard selection aids; teachers were more likely to rely upon textbook bibliographies, professional journals, and publishers' exhibits. In their sample, approximately 50 per cent of the teachers saw themselves as responsible for selection. They noted that communication between librarians and teachers regarding curriculum changes appeared inadequate.

The Present Study

It was the purpose of this investigation to study the effect of the local buying list upon the participation of school personnel in the selection process and upon the adequacy of the resulting collections. Accordingly, the following hypothesis was devised:

> as selection procedures for elementary school libraries become less centralized and standardized, the quality of collections improve because school librarians and teachers are more actively involved in selection.

The Sample.--To test the hypothesis, twelve elementary schools were visited: six schools in each of two Southwestern cities during the school year of 1969-70. For its elementary schools, District I has no annual buying list nor exhibit. Librarians, assisted by teachers, compile book orders from titles reviewed in selection media and professional journals, from titles seen at professional exhibits, bookstores and other libraries, and from examination copies available from the district science and library consultants.

District II, on the other hand, produces a yearly buying list from which elementary school teachers and librarians are requested to order. An exhibit, composed of many of the books contained in the list, is open to teachers and librarians for approximately a month prior to compilation of the annual book orders.

In all other obvious, at least measurable, variables, at least of the elementary school libraries, the two school districts were similar. Annual budgets for book orders were approximately the same: $1.56 per pupil for District I, and $2.00 for District II. All twelve schools which were in the sample had full-time librarians certified by the state. Both school districts had a history of elementary school libraries for the past twenty years.

The six schools which were visited in each city were chosen by the following process: all public elementary schools in the two cities, with full-time certified librarians who had been in their present positions for the school year of 1967-68, were divided into three socio-economic strata. These were: (1) low socio-economic stratum (schools eligible for Title I funds), (2) average socio-economic stratum, and (3) high socio-economic stratum (communities with median income above $7,000, according to the census data of 1960).

From these, a random sample of two schools from each of the strata was selected for study in each city.

Limits of the Study -- In addition to restricting the study to elementary schools, two other limits were set.

First, the subjects of astronomy and earth science were considered the focus subject areas. Only teachers who taught science were interviewed

and requested to complete questionnaires concerning selection criteria, selection procedures, and selection bibliographic aids. Science, and these two disciplines in particular, were chosen for study because of (1) the wealth of materials being published on the subjects, (2) the importance of securing correct concepts and information on both areas, (3) the rapidity with which such material might become outdated, and (4) the similarity of subject coverage by textbooks in science for both cities.

Second, the fourth grade was selected for study. Fourth grade textbooks in both school systems included units on the universe and the earth. In addition, a library collection for an average fourth grade class would probably include books for reading levels from kindergarten through grade eight. To have chosen a more advanced grade would have made necessary a much wider range of selection bibliographies.

Data Collection.-- After the twelve schools were selected for study in the spring of 1969, the principals were contacted to schedule interviews during the fall of 1969. Principals and librarians in the twelve schools were interviewed about school and library history and community socio-economic data, including public library facilities. Following these introductory sessions, taped structured interviews were conducted with the twelve librarians, forty-six fourth grade science teachers, and seven district supervisory personnel who participated in science book selection. These interviews collected data about policies, procedures, criteria, and bibliographic aids used in the selection of science books.

After the taped interviews were completed, additional data were acquired through questionnaires distributed to all selection personnel.

They were requested to rank bibliographic aids, selection criteria, and selection activities by usefulness or importance.

Ninety-four per cent of the teachers were interviewed and 84 per cent of the questionnaires were completed and returned. (Two science teachers in District I were not interviewed. In District II, one teacher refused to be interviewed. Two questionnaires were not returned from District I teachers, and three questionnaires were not returned from District II teachers.)

Next, data concerning the library collections were compiled. As a measure of quality, a check list of 265 books in astronomy and the earth sciences (Dewey Decimal Classification divisions 520-529, 549, and 550-559) were compiled from entries in the Children's Catalog, 1966 edition and its annual supplements for 1967, 1968, and 1969; Phase I books of the Elementary School Library Collection, 1968, and its supplement; and titled included in Books for Elementary School Libraries, An Initial Collection.

In addition, tradebook titles in the science textbook and science curriculum bibliographies for the fourth grades in the two school systems were listed for comparison with existing collections.

All titles of trade books, either on current orders or owned by any of the twelve libraries and classified in the 520's, 549 and 550's, also were noted for comparison with the Quality Checklist and science curriculum bibliographies.

Next, all titles were checked in appropriate issues of the Book Review Digest. Based upon reviews from the three bibliographic aids used to compile the Quality Checklist and the Book Review Digest, titles were assigned the reading levels of 2 (Primary), 4 (Intermediate), or 6 (Advanced).

A second data base for use in analyzing adequacy of collections was acquired from school district records. The results of reading tests, either the California Tests or the Iowa Tests of Basic Skills, taken in the spring of 1969 by students who would be in the fourth grade in the fall of 1969, were obtained.

After the interviews were completed in the twelve schools, with district science consultants and supervisory library personnel, acquisition routines and centralized processing activities were observed.

The Results.-- Six sub-hypotheses were designed to be used in the testing of the hypothesis (namely that autonomous selection by librarians and teachers produces better selected and more recent library collections in elementary schools than does a selection process based upon a local buying list, because selectors who are given more freedom are more involved and more adept at selection).

Three of the sub-hypotheses deal with aspects of selection: (1) the criteria used in selecting books for the twelve elementary school science collections, (2) the selection aids used by fourth grade science teachers, librarians, and district consultants, and (3) the selection activities performed by selection personnel.

Three additional sub-hypotheses deal with collections: (4) the quality of astronomy and earth science collections as measured against the Quality Checklist, (5) the adequacy of the astronomy and earth science collections, as measured against student reading abilities and curriculum needs, and (6) the recency of astronomy and earth science collections, and the time elapsing during acquisition and processing activities.

The results of the analyses of the data concerning these six sub-hypotheses are presented in the following paragraphs.

Sub-Hypothesis 1. Selection Criteria.-- The first sub-hypothesis designed to test the main hypothesis concerns the selection criteria used in book selection:

> Librarians and teachers who select independently are more aware of selection criteria for science books than are those personnel who use a local buying list.

All sixty-five persons who were interviewed concerning the selection of science books--fourth grade science teachers, librarians, and library and science consultants--were asked the question: "Which criteria do you consider most important in the selection of science books?"

The answers to this question by the sixty-five respondents were similar. First, the need for books on the appropriate reading level for their students was mentioned as a criterion by more respondents in both districts than was any other criterion. Approximately three-fourths of the respondents--fifteen from District I and thirty-one from District II--mentioned this item during taped interviews.

The second most frequently mentioned criterion was "illustrations." Fifty-seven per cent of the respondents from District I mentioned this item; 64 per cent of the respondents from District II included it in their criteria for selection.

A third criterion was mentioned by personnel in both districts, among the six most cited criteria. "Interest of children" was named by 33 per cent of the District I respondents and by 41 per cent of District II respondents.

The criterion "logical organization of concepts" was also listed in the highest criteria by both groups: It was ranked fifth (29 per cent) by District I personnel, and sixth (36 per cent) by District II personnel.

Items important in science books (recency of information, text and illustrations on the same reading level, and accurate, factual information) were all mentioned by some respondents in each district.

A high correlation of .83 was obtained between the ranking of criteria from both districts. A difference of means test supported the findings in the previous two tests: it was impossible to say that the personnel interviewed in District I mentioned significantly more or different selection criteria than did those personnel from District II.

Similar results were obtained when the criteria mentioned by teachers were separated from the criteria cited by librarians and district consultants. The latter group reversed the two highest ranked criteria: they mentioned "illustrations" most and "reading level of children" second.

No basis for acceptance of sub-hypothesis 1 was found in the data. Personnel from both districts mentioned the same criteria in a highly similar ranking.

Sub-Hypothesis 2. Selection Aids.-- The second sub-hypothesis designed to test the main hypothesis concerns the selection aids used in the selection of science books:

> Librarians and teachers who select independently consult more selection aids than do those personnel who use a local buying list.

All sixty-five persons who were interviewed--fourth grade science teachers, librarians, and district library and science consultants--were asked to enumerate the selection aids which they used to select science books.

A total of fifty selection aids were mentioned by the sixty-five persons who were interviewed. In District I, which does not use a local buying list, only three aids were mentioned by more than four respondents. These were the Children's Catalog, Horn Book and the catalog to accompany Books on Exhibit.

In District II, over three-fourths, 34, of the personnel who were interviewed stated that they used the local buying list exhibit (called the System Book Exhibit) as an aid in the selection of science books. Thirteen of the respondents mentioned that they used textbook bibliographies as selection aids.

A low correlation of .15 was computed between the ranking of selection aids used in the two districts. A t-test, calculated to determine if a significant correlation did exist between the two district, was not significant at the 5 per cent level. On the findings of a difference of means test, it was impossible to say that the personnel interviewed in District I mentioned significantly more selection aids than did the personnel from District II.

When the responses by fourth grade science teachers (thirteen from District I and thirty-three from District II) are examined, a similar pattern of the use of selection aids is observed. Teachers used exhibits, catalogs, or bibliographies prepared for them. Very few used subject or library reviewing journals.

Nearly three-fourths, 24, of the teachers from District II reported that they used the system annual book exhibit as a selection aid. The highest ranked selection aid for teachers in District I, the catalog listing titles in the Books on Exhibit collection, was mentioned by five teachers as a selection aid.

Librarians, as well as subject and library consultants, mentioned basic selection aids more often. All of the librarians interviewed in District I mentioned the Children's Catalog as a selection aid. In the interviews with eleven librarians and consultants in District II (the district which has an annual buying list), the book exhibit, built from books on the list, was the most mentioned selection aid. Ten out of eleven persons interviewed stated that they used the exhibit as a selection tool. Eight respondents stated that they used the Children's Catalog.

No basis for acceptance of sub-hypothesis 2 was found in the data. Although the use of selection aids was inadequate, and the selection aids varied (District II personnel relied heavily upon the System Book Exhibit and the accompanying list), data failed to demonstrate that personnel from District I used more selection aids than did the personnel in District II.

Sub-Hypothesis 3. Selection Activities.-- The third sub-hypothesis designed to test the main hypothesis concerns the activities used to select science books for the twelve elementary school libraries:

> Librarians and teachers who select independently perform more selection activities than do those personnel who use a local buying list.

Data to test this sub-hypothesis were collected by three methods. First, all sixty-five persons who were interviewed concerning the selection of science books were asked the question: "How much time do you spend on the evaluation and selection of science books for libraries?" Second, all sixty-five persons were asked the question: "What suggestions do you have to implement better selection of science books for your individual school?" Third, twelve selection activities were listed in the questionnaire forms distributed to persons who were interviewed.

Results from fifty-six questionnaires that were completed (9 questionnaires were either not returned or were not completed by teachers from each district) revealed that personnel in the two districts participated in different selection activities.

The selection activity ranked highest by District I personnel was "checking bibliographies prepared by subject consultants against library holdings." Fifteen out of nineteen respondents checked this item.

Second, fourteen of the respondents from District I indicated that they read reviews of new books in library selection aids and selected books to be ordered. The next three highest ranked activities: checking publishers' catalogs, visiting local bookstores, and visiting public libraries were each checked by nearly 70 per cent of the District I personnel.

In District II, as expected, the item ranked first by personnel was "checking a system-wide approved list." Ninety-three per cent of the respondents indicated that they performed this selection activity.

Three other activities were checked by 73 per cent or more of the personnel in District II. These were "reading reviews of new books in library selection aids and selecting books to be ordered," cooperating with other teachers to choose books evaluated by other local personnel, and visiting public libraries.

A low correlation of .03 was computed between the ranks assigned selection activities in the two districts. A t-test, calculated to determine if a significant correlation did exist between the two districts, was not significant at the .05 level. On the findings of a difference of means test, it was impossible to say that the personnel from District I

participated in more selection activities than did the personnel from District II.

The teacher respondents from District I ranked "visiting local bookstores" first. A slightly lower rank was assigned to the item "checking bibliographies prepared by subject consultants against library holdings."

When the replies from teachers in District II are considered alone, the four items ranked above 70 per cent are the same four items ranked highest by all District II respondents.

As was to be anticipated, librarians and consultants indicated more participation in selection activities than did teachers. All District I personnel checked four activities: examining Books on Exhibit, selecting books from library selection aids, checking bibliographies prepared by subject consultants against holdings, and visiting public libraries. All District II personnel indicated that they selected books from reviewing journals and used a local buying list. In addition, more than 90 per cent indicated that they examined publishers' exhibits and visited local bookstores.

As a second test to measure participation in selection activities, every person was asked to estimate the amount of time he spent yearly in the selection of science books. No statistically significant difference was found between the personnel in the two districts.

Additional data were collected about selection activities in the form of an open-ended question: "What suggestions do you have to improve the selection of science books for your library?"

The most frequent comment was "I need more time." Other voiced comments included pleas, by librarians and consultants, for more involvement

of teachers and students in selection. From teachers came requests for improved exhibits and reviews of multimedia, arranged by subject and on several reading levels.

No basis for acceptance of sub-hypothesis 3 could be found in the data. Personnel from the districts differed in selection activities, but the differences between the number of selection activities performed per person and the time spent per person were not significant.

Sub-Hypothesis 4. Quality of Collections.-- The fourth sub-hypothesis designed to test the main hypothesis concerns the quality of collections in astronomy and the earth sciences:

> Elementary school libraries with selection by teachers and librarians who do not use a local buying list will have better collections in astronomy and earth science, when measured against a list of books from standard selection aids, than will those elementary school libraries for which books are selected from local buying lists.

To test this sub-hypothesis, astronomy and earth science collections in twelve elementary school libraries, six in District I and six in District II, were analyzed in relation to a checklist of 265 books. The Checklist was compiled from entries, in the two subject areas, in the Children's Catalog series, the Elementary School Library Collection, and Books for Elementary School Libraries. In addition, all astronomy and earth science titles, which were owned by the libraries, were compared with entries in the annual volumes of the Book Review Digest.

Slightly more than 50 per cent, on the average, of the holdings of the twelve libraries were listed on the Checklist. District I libraries had an average of 61 per cent of their collections included on the

Checklist. District II libraries had an average of 56 per cent of their collections included on the Checklist.

Quite similar averages were also computed for the titles in the collections located in either the Checklist or the Book Review Digest. Both districts had an average of 86 per cent of the collections included in one or both of the lists: the Checklist and the Book Review Digest.

Calculations of two-way analyses of variance on percentages of collections included in (1) the Checklist and/or (2) the Book Review Digest are not significant, at the 5 percent level, when districts or economic levels are considered.

Because collections were small, only two libraries held more than 40 per cent of the Checklist titles in their collections. The average percentage of the Checklist titles in District I libraries was 27; in District II libraries it was 37 per cent.

In fact, almost one-fourth of the titles included in the Checklist was not owned by a single library. Another 12 per cent of the titles were located in one collection only. Two titles, listed on the Checklist, were held in common by all twelve libraries.

Slightly more uniformity was evident in the collections of District II, which uses a local buying list, than in District I. However, neither district had adequate collections when measured against the Checklist. Sub-hypothesis 4, that District I collections would be significantly better, when measured against the Checklist, than would be District II collections, was not supported by the data.

Sub-Hypothesis 5. Correlation Between Collections and School Needs.-- The fifth sub-hypothesis designed to test the main hypothesis concerns the adequacy of the collections, in the areas of astronomy and earth sciences, for curricular interests and student reading abilities:

> Earth science and astronomy collections selected by librarians and teachers who do not use a local buying list will differ more to reflect the curricular interests and reading abilities of their own students than will collections selected by librarians and teachers who use a local buying list.

Two approaches were made to test this sub-hypothesis. First, titles from four lists of books suggested as science curriculum-correlated materials for the two districts were combined into a checklist. A total of 121 titles were included in the checklist: fifty-three titles were taken from the bibliographies for District I and eighty titles from the lists for District II.

No statistical tests were made on the data, because District II schools held an appreciably larger percentage of books from both district lists, than did the District I schools. On the average, District II schools held 47 per cent of their curriculum related materials, and 44 per cent of the titles recommended for District I schools. District I schools held an average of 29 per cent of their curriculum related books and 30 per cent of the District II books.

Next, the rank order correlation between the reading test scores and the reading levels of astronomy and earth science titles held by the libraries was calculated for each district and for all twelve schools. A low correlation of .31 was computed for the pattern of association between the student reading level and the reading level of the books in the

schools in each district. A t-test, computed to determine if the slightly higher correlation of .34 between all twelve schools and collections was significant, produced a t of 1.13. No significant pattern of correlation was found to exist, at least for these samples from the two districts.

There appears to be no foundation for the validity of sub-hypothesis 5. District II libraries included a larger percentage of books from their curriculum-related lists than did District I libraries. No significant correlation was evident, for either district, between student reading scores and science book reading levels. In fact, the correlation, for both districts, was exactly the same: .31.

Sub-Hypothesis 6. Recency of Collections.-- The sixth, and final, sub-hypothesis designed to test the main hypothesis concerns the recency of collections:

> Elementary school library collections, with books selected by teachers and librarians who do not use a local buying list, will contain more recently published books and they will be available for circulation earlier than in those libraries where books are chosen from a local buying list.

Three different groups of data were used in the analysis of this sub-hypothesis. These were: (1) average publication dates for astronomy and earth science titles in the twelve elementary school libraries which were visited, (2) average time elapsing from the date that books were ordered until they were available for circulation in the twelve libraries, and (3) average publication date of all the books in the 1968-69 orders of the twelve libraries.

First, a calculation of two-way analysis of variance on the publication dates of the astronomy and earth science collections was

significant, at the 5 per cent level, when districts were considered. The average publication data for books in District II collections was slightly more than a year later than for District I libraries: 1959.17, opposed to 1958.07. Differences in economic levels were slight.

Second, a difference of means test was computed on the elapsed time between the dates on which books were ordered and when they were available for use in libraries. The mean time elapsing between the date books were ordered and available for circulation in District I was nine months, for District II it was thirteen months. A significant difference, at the 5 per cent level, was found between these two averages.

Third, samples of 189 books from the orders of the six schools in District I and of 206 books from orders of the six schools in District II, for the school year of 1968-69, were drawn to determine if there was a significant difference in the recency of the books in orders. A difference of means test showed a significant difference, at the 5 per cent level. More recent books were ordered by District II libraries.

No basis for acceptance of sub-hypothesis 6 was found in the data. In fact, District II astronomy and earth science collections, based upon a sample of six schools, had on the average a more recent publication date than did the collections in District I. Also, the titles ordered by District II, in 1968-69, were, on the average, 4 years more recent than were District I orders. On the average District I schools received their orders four months quicker than did the District II schools. A difference of means test supported the hypothesis that District I collections were received more quickly. (After District I schools received orders, they required cataloging and processing in the individual schools.)

Summary.-- This investigation has reported the effect of a local buying list upon selection procedures by fourth grade science teachers and librarians and the resulting elementary school library collections in astronomy and the earth sciences. Data collected in two cities, for six elementary schools in each city, about selection criteria, selection aids, selection activities, and the quality and adequacy of collections revealed no appreciable differences between the city which had a list and the city which did not, except in four aspects.

First, the schools in the city which uses a local buying list held larger percentages of the books recommended for correlation with the fourth grade science textbooks. Second, their holdings were, on the average, a year more recent than the District I holdings. Third, their 1968-1969 orders contained books with more recent publication dates. However, District I libraries received their orders quicker. There appeared to be no basis for support of the general hypothesis that autonomous selection by librarians and teachers produces better selected and more recent library collections in elementary schools, because selectors who are given more freedom (that is they do not use a local buying list) are more involved and adept at selection.

Conclusions

This section contains two divisions. As a framework for conclusions, the eight questions posed in the first chapter about selection procedures and the resulting collections are repeated and answered. Then limitations of the study are explored.

1. Do librarians responsible for book selection in schools know their school communities and curricula, involve teachers in the selection process, and examine books, or do they rely upon basic lists, publishers' catalogs or starred items in reviewing journals?

2. Do faculty subject specialists and teachers aid in the evaluation of subject materials, read reviews, and examine books at publishers centers and bookstores?

In the interviews with teachers and librarians, few reported any planned discussion of the science curriculum. Informal chats over coffee and lunch appeared to be the extent of involvement of the librarians in curriculum building.

Librarians appeared to provide more assistance with materials for class units. Five librarians in each District reported helping teachers to plan units in science. At least 50 per cent indicated that they prepared lists or groups of books for teachers.

In taped interviews, librarians also appeared more aware of the subject needs and interests of the students. However, time for librarians and teachers to communicate seemed minimal.

In reality, teachers were not deeply involved in the selection process. Time again appeared to be the missing ingredient. The median time spent per fourth grade science teacher in District I on the selection of science books during nine months is only twenty minutes, and in District II, fifty-four minutes (indicating that little actual selection is performed by most teachers). Librarians, district subject and library specialists, and a few interested teachers perform the actual evaluation and selection. They do the reviews for the District II buying list and they select for the libraries in District I. Not until teachers and librarians are given

released time for book selection can teachers as a group be expected to increase their participation.

If librarians and a few teachers shoulder the responsibility for selection, do they actually examine books or do they rely upon reviews by others in local and national lists? Apparently the answer is: They do both. In District I, all six librarians noted that they examined the touring Books on Exhibit collections and visited the public library to read new books. They also indicated that they read national reviews and checked publishers' catalogs, lists compiled by subject consultants, and subject bibliographies against their holdings. (The low percentage of holdings in curriculum related materials may raise questions about the adequacy of such lists.)

All of the librarians in District II indicated that they visited the local exhibit and used the local buying list, as well as read reviews in selection journals.

3. Are librarians knowledgeable in the evaluation of books?

4. Are faculty members knowledgeable in selection criteria?

Librarians and teachers appear more interested in the usefulness and attractiveness of books, for their students and the curriculum, than in the accuracy of content. Personnel from both districts mentioned infrequently important items such as simple, safe experiments, logical organization of concepts, clear simple writing, accurate factual information, and recency of information. This finding is not too surprising, when correlated with the slight science knowledge of many teachers and librarians.

5. Do local buying lists cause less participation by teachers in individual school selection?

The local buying list and annual exhibit in District II appeared to create more interest in selection. Often, teachers reported that they visited the exhibits in committees, by grade level, compared notes later, and discussed titles to be purchased. They realized the need for more time to read books and to compare books.

6. Do local buying lists slow the acquisition process because of the time for books to be evaluated and added to lists?

On the contrary, the recency of publication dates of books on orders appeared to be a notable advantage of the local list. Although the average interval between date of purchase order and availability of new books was four months longer for District II, books did arrive in the libraries prepared for circulation. After the books arrived in District I libraries, processing and cataloging had to be completed.

7. Is there a significant difference between the collections selected independently by librarians and teachers, and those selected from local buying lists?

Collections selected from a local buying list, in the district sampled, did not differ appreciably from collections in schools which did not use a local buying list. They were as recent, contained as large a percentage of books from a quality checklist, and had as high correlation with reading scores of students.

8. Is it possible for varying abilities and interests of students to be met from these centralized lists (especially the needs of the disadvantaged student for easy reading and enrichment materials)?

This question is the most important asked, the most difficult to measure, and has the least satisfactory answer. Based upon the data

collected for this study, the answer is: the collections built from local buying lists correlated as highly with reading abilities of students as did the collections built without the use of lists. However, both correlations were low.

No attempt was made to measure the more subjective needs of the students, and the capacities of the collections. Finally, it appears logical to advance the hypothesis that small collections, in schools with similar basic collections, budgets, curricula, involvement of teachers, and education of librarians will be similar, regardless of the method of selection. One can conclude that the use of a local buying list or national selection tools is not a major factor in determining the quality of small collections.

Limitations of the Study.-- In surveying this study of selection procedures and library collections, certain limitations in design and data collection are evident. Three apparent limitations are discussed in the following paragraphs.

First, the pitfalls of the interview and questionnaire forms of data collection are widely recognized. Two groups of data, the ranking of selection criteria and selection aids, were discarded because they appeared to have little reliability. Even the data collected by spontaneous interviews contain the unmeasured element of exaggeration. However, trends were evident and hopefully these trends were valid.

The problem of semantics is particularly difficult to assess in a study based upon interviews. When a teacher mentioned the selection criterion, "reading level of student," what was implied? Does one

include in this statement the qualities of writing style, introduction of concepts, ease of word-recognition, and the spacing of type on a page? If so, then in reality one was including four criteria, not merely one.

Second, there were no pretests conducted with teachers. Site visits in classrooms to collect data from teachers is difficult and, for teachers, time consuming. The instruments were discussed with doctoral advisors, fellow faculty members, and with elementary school librarians.

A third aspect of the study which merits improvement is the sample. A more accurate sample might have been drawn by a random selection of fourth grade teachers, librarians, and titles from all the elementary schools in Districts I and II. In addition, there was no attempt to determine the effect of a local buying list on collections in District II, where schools were served by part-time librarians, or to determine the effect of teachers, other than fourth grade science teachers, on the selection process and collections.

And, as has been apparent throughout the study, there were unequal numbers of respondents from the two districts. Schools in District II frequently were large. Often several teachers taught one or two sections of fourth grade science. In District I, fewer teachers were more likely to be responsible for fourth grade science classes. Finally, as will be mentioned again in the section to follow, the study needs to be repeated in other cities of varying sizes and with various curricula.

Suggestions for Further Research

The comments about the findings of research discussed in Chapter II are appropriate to describe the present study. It is in these three areas

that, it appears to the investigator, future research is needed: selection aids, involvement of teachers in the selection processes, and selection procedures. For best results, these further studies should use the same procedures and definitions so that results may be compared.

Further research is needed on the optimum selection aid, both local and national. Questions such as why teachers and librarians select titles from a local list, but fail to select the same titles from national lists, need answers. Is it that, given the necessary time, teachers select books more readily from lists and exhibits, rather than from lists only? If this is true, perhaps national lists of multimedia, arranged by subject, can be used in connection with regional selection centers.

Various methods of training teachers to evaluate and select materials need to be explored. Closed-circuit and cable television programs, as well as programmed texts, are possibilities. Especially in the areas of education in evaluation and selection of materials does it seem appropriate for school districts and regional selection centers to cooperate with public libraries.

Finally, the type of study presented in the previous pages needs to be repeated with various disciplines, size of cities, and curricula. As the teacher-dominated classroom fades and individualized instruction increases in the classroom, the wise choice of materials becomes even more imperative.

FOOTNOTES FOR CHAPTER VII

[1]McCartney, "The Selection of Instructional Materials," 1960.

[2]Sheriff, "A Study of the Level of Quality Used in Selecting Library Books," 1965.

[3]Shearer, "A Comparison of the Contents of Book Selection Lists," 1969.

[4]Jones, "A Study of the Library Book Collections in the Biological Sciences," 1965.

[5]Schmitz, "A Study of the Library Book Collections in Mathematics and the Physical Sciences," 1966.

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APPENDIX A

RESULTS OF SIMILAR RESEARCH STUDIES

Results of Research on Selection Aids, Selection Personnel and Evaluation of Books in Elementary Schools[a]

Selection Aids	California 1	2	3	4	5[b]	Pennsylvania
Basic Book Collection for Elementary Grades	81%	65%	48%	70%	60%	79.19%
Booklist	Not listed in questionnaire					43.86
Bulletin of the Children's Book Center	13	21	-	30	60	17.54
Children's Catalog	66	71	81	50	80	87.75
Horn Book	61	-	39	35	60	21.05
Publishers' catalogs	Not listed in questionnaire					75.43
School Library Journal	66	36	45	55	60	38.59
Selection Personnel						
Teacher	35.2	35.8	54.6	10	40	85.96
Librarian	-	43.1	54.6	40	60	61.40[c]
Principal	-	45.8	48.5	20	20	49.12
Committee	25.9	63.7	75.8	75	100	15.78
Supervisory Personnel						38.59
Adm. personnel	38.9	0.5	-	30	-	
Curr. Dept.	64.9	35.8	45.5	35	20	
Library Supervisor	51.9	11.6	42.4	55	40	
Methods of Evaluation						
Screen against book selection aids before evaluation	53.7	49.5	54.6	80	40	Not listed in questionnaire
Always read before purchase	22.3	1.1	30	25	100	"
Book read about 1/2 time	-	27	30	10	-	"

(continued)

Methods of Evaluation	California 1	2	3	4	5	Pennsylvania
Reviews are read, but books read infrequently	46	38	27	65	-	Not listed in questionnaire
Checklist evaluation form used	25	25	39	35	40	"
Traveling exhibits	Not listed in questionnaire					73.68
Salesmen	"					68.42
Book Fairs	"					63.15
Department of Public Instruction Book Selection Center	"					8.77

[a] McCartney, "The Selection of Instructional Materials," pp. 130, 140, 143; Sheriff, "A Study of the Level of Quality," pp. 25, 27-28.

[b] 1: County superintendent's offices serving schools with less than 900 in enrollment; 2: 900-4,999 enrollment; 3: enrollment between 5,000-9,999; 4: 10,000-29,000; 5: 30,000 or more enrollment.

[c] 80% when full-time librarian.

Results of Studies of Michigan High School Science Collections[a]

	Collections		
	Biological Sciences	Physical Sciences	Mathematical Sciences
Percentage of Collections	5.7% (1.6 book per student)	4.8% (1.3 book per student)	1.2% (.13 book per student)
Average Percentage Held of Master List	25.1% of 960 titles	21.6% of 767 titles	8.5% of 551 titles
Recency of Collections	22.8% (1959-61 publication dates)	34.1% (1959-61 publication dates)	26.2% (1959-61 publication dates)

	Selection Aids					
	L[b]	T[c]	L	T	L	T
AAAA SCIENCE BOOK LIST	94%	46%	92%	58%	92%	24.4%
AAAS Traveling High School Library Collection	80	25	-	48	-	-
ALA. BASIC BOOK COLLECTION FOR HIGH SCHOOLS	94	-	98	-	98	-
Book Agents	-	20	-	-	-	-
BOOKLIST	92	-	88	-	88	-
HIGH SCHOOL MATHEMATICS LIBRARY	-	-	-	-	39	60
LIBRARY JOURNAL	88	-	76	-	76	-
MATHEMATICS TEACHER	-	-	-	-	-	68
Publishers' Announcements	-	-	-	28	-	-
Publishers' Exhibits	-	41	-	46	-	47
SCHOOL SCIENCE AND MATHEMATICS	-	-	-	30	-	32
SCIENTIFIC AMERICAN	77	53	74	71	74	30
STANDARD CATALOG FOR HIGH SCHOOL LIBRARIES	100	-	100	-	100	-
Teacher Recommendations	-	48	-	47	-	52
Textbook Bibliographies	-	43	-	41	-	34

(continued)

	Percentage of Teachers Who Suggested Titles for Selection		
Yes	75%	68%	58%
No	25	31	41

[a]Jones, "A Study of the Library Book Collections in the Biological Sciences," 1965, pp. 393, 395, 400, 403, 409, 526, 541-552. Schmitz, "A Study of the Library Book Collections in Mathematics and the Physical Sciences," 1966, pp. 118-120, 124-127, 137-139, 141-145, 147-149, 155-156, 167, 169-172.

[b]Librarian Respondents.

[c]Teacher Respondents.

APPENDIX B

INSTRUMENT FORMS USED TO COLLECT DATA

Elementary School Book Selection Questionnaire
(School District Information Form)

Please complete or check the appropriate blanks.

School District _____

Elementary Library Services Coordinator _____

Address _____

Number of elementary schools with full-time librarians (librarians with bachelor degrees and at least 15 hours of library science courses, earned during or after the bachelor's degree)

_____

How many years have these individual schools had full-time librarians? _____

Science is taught to fourth grade students by (1) home-room teachers (self-contained classrooms) _____ or by (2) special science teachers _____.

_____ is used as a textbook for fourth grade science classes. (If multiple texts are used, please list all the texts.)

Per pupil book budget, 1968-1969 _____. Federal funds _____. Local funds _____

Science books are selected by teachers and librarian in individual schools _____ from (1) book exhibits or reviewing copies _____; (2) standard library selection aids _____; (3) textbook bibliographies _____; (4) other sources (please list sources) _____

_____

OR

Science books are selected from a system-wide approved list, compiled by (a) librarians _____ or (b) committees of teachers and librarians _____. The system-wide list is compiled from (1) book exhibits and reviewing copies _____; (2) standard library selection aids _____; (3) textbook bibliographies _____; (4) other sources (please list sources) _____

Books may be ordered (1) annually _____; (2) semi-anually _____; (3) quarterly _____; (4) monthly _____; (5) at other intervals (please state intervals) _____.

Books are processed (1) centrally _____; (2) commercially _____; (3) by a librarian in each school _____.

Jane Pool
10-68

Instrument A

ELEMENTARY SCHOOL LIBRARY SCIENCE BOOK SELECTION

School District _____
Elementary School _____
Address _____
Principal _____
Date school was opened _____
Number of students enrolled, 1968-69 school year _____
in grades _____
Per pupil budget, 1968-69 _____

Number of fourth grade sections _____
Number of students in each section _____

Students are grouped according to (1) ability _____;
(2) racial balance _____; (3) other method of grouping
(list method) _____

Is a test used to measure reading level of fourth grade students
at beginning of the school years? Yes _____ No _____
If answer is "yes," what is the median reading level: _____
Mode _____.Range _____.First quartile _____.
Second quartile _____. Third quartile _____.
Fourth quartile _____.

How many years has a central library been established? _____
How many years has a full-time librarian been available? _____
1968-69 budget: (per pupil) _____; (% of operating cost)
_____. Federal funds: _____; Local funds _____;
PTA funds _____; Other funds (list funds) _____

How many hours per week are fourth grade students scheduled into
the library? _____ Does a teacher come with the
students? _____ Scheduling is fixed _____;
flexible _____; other (please explain) _____

The community was established in _____. It contains approxi-
mately _____% laborers; _____; clerical workers;
_____% professional employees.

Which sciences are most useful for your community special
interests and needs? _____

Mean income of families, 1968 _____
Range _____ Mode _____
Mean age of community, 1968 _____
Modal age, 1968 _____
Mean educational level, 1968 _____
Modal educational level, 1968 _____
Range of educational level, 1968 _____

Public library facilities are _____ blocks from the school.
When were public library facilities first available? _____
Size of children's collection? _____ Approximate size of children's science collection _____

(To be completed during an interview with school principal, from census records and other public records)

Jane Pool
1/69

Instrument B

ELEMENTARY SCHOOL LIBRARY SCIENCE BOOK SELECTION
(Structured interview schedule with school librarian).

School District _____
Elementary School _____
Address _____

Librarian _____
Degrees: B.A. _____ B.S. _____ M.A. _____
M.S. _____ Other (please state degree) _____
Undergraduate major _____
Graduate major _____
Number of semester hours of library science courses _____

Number of semester hours of college science courses _____

How many years have you been an elementary school librarian, not counting this year? _____

How many years have you been a librarian in your present school, not counting this year? _____

Is a written book selection policy available for your school system? How does the individual school book selection policy differ from the system policy?

What special areas in science does your school curriculum emphasize? Fourth Grade areas? What reading problems does your school have? What special community science interests do you serve?

What strengths and weaknesses in your school science collection have you found? Do you have a continuing plan for building a science collection?

Do you participate in curriculum revision and unit planning?

How are science books chosen for the library? What role do you play in the selection of science books? Who else participates in selection of science books for the library?

How much time do you spend (1) weekly _____; (2) monthly _____; (3) yearly _____ on evaluation and selection of science books for libraries?

(continued)

Jane Pool
1/69

ELEMENTARY SCHOOL LIBRARY SCIENCE BOOK SELECTION
(Structured interview schedule with school librarian) (2)

Is selection done during released school time or on "after-school" time?

Which five basic selection aids do you consider most important in the selection of a basic science collection?

Which five selection aids do you consider most important in the selection of current science books?

Which criteria do you consider most important in the selection of science books?

What suggestions do you have to implement better selection of science books for your individual school?

Books may be ordered (1) annually _____; (2) semi-annually _____; (3) quarterly _____; (4) monthly _____; (5) spot-ordered _____; (6) at other intervals (state intervals) _____

Do you order direct with special funds?

Books are cataloged and processed (1) centrally _____; (2) commercially _____; (3) by a librarian in each school _____

(continued)

Jane Pool
1/69

ELEMENTARY SCHOOL LIBRARY SCIENCE BOOK SELECTION
(Structured interview schedule with school librarian) (3)

Books are usually ready to circulate in the library (1) one year from date of order _____; (2) six months from date of order _____; (3) three months from date of order _____; (4) less than three months from date of order _____

Librarian and a committee of teachers check holdings to weed selections and keep it up to date (1) annually _____; (2) every two years _____; (3) other intervals _____; (4) not at all _____

Please check the activities in which you have participated this school year:

_____ Serve on science curriculum committees

_____ Observe science classes

_____ Help teachers plan units in science

_____ Prepare bibliographies of science books for teachers

_____ Prepare bibliographies of science books for students

_____ Select science books from the public library for use in science classes

_____ Maintain file of community resources and people in the areas of the sciences

_____ Have displays of class science projects in library

_____ Organize and house audio-visual science materials in library, including realia

_____ Present book talks about new science books to students

_____ Serve on teams teaching science

_____ Prepare exhibits of new science books in library

_____ Prepare exhibits of new science books in classrooms

_____ Use science books in teaching use of card catalog, information file, etc.

_____ Read aloud to students excerpts from new science books

Please list other activities:

Jane Pool
1/69

Instrument C.

ELEMENTARY SCHOOL LIBRARY SCIENCE BOOK SELECTION
(Structured interview schedule with science teacher)

School District _____
Elementary School _____
Address _____

Science Teacher _____
Degrees: B.A. _____ B.S. _____ M.A. _____ M.S. _____
Other (please state degree) _____
Undergraduate major _____
Graduate major _____
Number of semester hours of college science courses _____
Number of semester hours of library science courses _____

How many years have you been an elementary school teacher, not counting this year? _____

How many years have you been a teacher of science in your present school, not counting this year? _____

How many sections of science do you teach? _____
How are these sections organized: (1) ability _____; (2) racial balance _____; (3) other (please explain) _____

Do you teach other courses? Yes _____ No _____ If answer is "yes," what are these courses?

Have you participated in curriculum planning for the science courses you teach? Yes _____ No _____ If answer is "yes," when did you participate in planning? _____

Do you use a textbook for your science teaching? Please list textbooks.

What are the major units in the science curriculum? (May need to attach curriculum guide)

What special subject and reading needs do you have in your school and classes?

(continued)

Jane Pool
1/69

ELEMENTARY SCHOOL LIBRARY SCIENCE BOOK SELECTION
(Structured interview schedule with science teacher) (2)

Does your librarian participate in curriculum and unit planning? System level? Local building level? In what ways?

How are science books chosen for the library? What role do you play in the selection of science books? Who else participates in selection of science books for the library?

Which criteria do you consider most important in the selection of science books? Which selection aids do you use?

How much time do you spend (1) weekly _____; (2) monthly _____; (3) yearly _____ on evaluation and selection of science books for libraries?

Is selection done during released school time or on "after-school" time?

What suggestions do you have to implement better selection of science books for your individual school? Weaknesses and strengths?

Have you used the public library for science books for your classroom lately? Why? What subjects?

Jane Pool
1/69

Instrument D

ELEMENTARY SCHOOL LIBRARY SCIENCE BOOK SELECTION
(Structured interview schedule with special selector)

School District _____ Name _____
Position: Subject consultant _____ Library coordinator _____
Other (state position) _____
Degrees: B.A. _____ B.S. _____ M.A. _____ M.S. _____
Other (state degree) _____
Undergraduate major _____
Graduate major _____
Number of semester hours of library science courses _____

Number of semester hours of college science courses _____

How many years have you been an elementary librarian? _____

How many years have you been a science teacher? _____
What grades have you taught? _____

Is a written book selection policy available for your school system? Is a special section concerned with science? Who wrote the policy concerning selection of science books?

Do you participate in curriculum revision and unit planning?

How are science books chosen? What role do you play in the selection of science books? Who else participates in the selection of science books for your system?

How much time do you spend (1) weekly _____; (2) monthly _____; (3) years _____ on evaluation and selection of science books for libraries?

Is selection done during released school time or on "after-school" time?

(continued)

Jane Pool
1/69

ELEMENTARY SCHOOL LIBRARY SCIENCE BOOK SELECTION
(Structured interview schedule with special selector) (2)

Which five basic selection aids do you consider most important in the selection of a basic science collection?

Which five selection aids do you consider most important in the selection of current science books?

What suggestions do you have to implement better selection of science books for your school system?

What criteria do you consider most important in the selection of science books?

Jane Pool
1/69

Instrument E

ELEMENTARY SCHOOL LIBRARY SCIENCE BOOK SELECTION QUESTIONNAIRE

Please complete or check the appropriate blanks.

School District _____

Name _____

Position: Subject consultant _____ Science teacher _____ Librarian _____ Library Coordinator _____

Other position (please state position) _____

If the position of science teacher or librarian were checked above, please check economic level of school you serve: high economic level _____ average economic level _____ low economic level _____

Degrees: B.A. _____ B.S. _____ M.S. _____ M.A. _____

Other (state degree) _____

Undergraduate major _____

Graduate major _____

Number of college science semester hours _____

Number of library science semester hours _____

I. CRITERIA FOR EVALUATING LIBRARY SCIENCE BOOKS

Please group the following criteria into three divisions by placing "1" beside those items you consider most important, "2" by those items you consider of secondary importance and "3" by those items you consider least important in evaluating science books for library collections.

_____ Reputation of publisher

_____ Opaqueness of paper

_____ Logical organization of concepts

_____ Binding

_____ Recency of information

_____ Safe experiments and activities

_____ Authority of editor of consultant

_____ Use in curriculum

(continued)

Jane Pool
1/69

ELEMENTARY SCHOOL LIBRARY SCIENCE BOOK SELECTION QUESTIONNAIRE (2)

I. (continued)

_____ Informative illustrations which amplify text

_____ Clear, simple writing

_____ Specific references in text to illustrations

_____ Subject background of author

_____ Page layout

_____ Index and table of contents

_____ Accurate factual information

_____ Glossary, pronunciation key and bibliography of further readings are included

_____ Size of type

_____ Reviews in selection aids

_____ Text and illustrations on same reading level

Please list below other criteria which you consider important:

II. SELECTION AIDS

Please group the following selection aids into four divisions:
1. Place a double asterisk (**) by those you consider basic.
2. Place a single asterisk (*) by those you always use.
3. Place a plus (+) by those you have used at least once this year.
4. Place a minus (-) by those you do not use.

Books and Pamphlets

_____ AAAS SCIENCE BOOK LIST FOR CHILDREN. 1963

_____ ALA. BASIC BOOK COLLECTION FOR ELEMENTARY GRADES. 1960

_____ ACEI. BIBLIOGRAPHY OF BOOKS FOR CHILDREN. 1965

_____ Bowker. BEST BOOKS FOR CHILDREN. Annual

(continued)

Jane Pool
1/69

ELEMENTARY SCHOOL LIBRARY SCIENCE BOOK SELECTION QUESTIONNAIRE (3)

II. (continued)

_____ Bowker. GROWING UP WITH BOOKS.

_____ Bowker. GROWING UP WITH PAPERBACKS

_____ Bowker. GROWING UP WITH SCIENCE BOOKS

_____ BOOKS FOR CHILDREN, 1960-1965 and supplements (BOOKLIST)

_____ CHILDREN'S CATALOG. 1966 and supplements

_____ Gaver. ELEMENTARY SCHOOL LIBRARY COLLECTION, PHASES 1-2-3. First____ Second ____ Third ____ Fourth _____ editions and supplements

_____ GOOD BOOKS FOR CHILDREN, 1950-1965 (University of Chicago Center for Children's Books)

_____ Haman and Eakin. LIBRARY MATERIALS FOR ELEMENTARY SCIENCE. 1964

_____ Hodges, Elizabeth D., ed. BOOKS FOR ELEMENTARY SCHOOL LIBRARIES. 1969 (Replaces ALA BASIC BOOK COLLECTION FOR ELEMENTARY GRADES)

_____ JUNIOR HIGH SCHOOL LIBRARY CATALOG. 1965 and supplements

_____ Kirkus Service

_____ Mallinson and Mallinson. A BIBLIOGRAPHY OF REFERENCE BOOKS FOR ELEMENTARY SCIENCE. 1962

_____ NCTE. ADVENTURING WITH BOOKS. 1966

_____ NCTE. YOUR READING; A BOOK LIST FOR JUNIOR HIGH SCHOOLS. 1966

_____ Orsini, Lillian. "Suggested List of Reference Tools for Children in Grades 1-8," RQ, Winter, 1967

_____ Spache, George. GOOD READING FOR POOR READERS. 1968

_____ U.S. Library of Congress. CHILDREN'S BOOKS. 1964-Annual

_____ U.S. National Aeronautics and Space Administration. AEROSPACE BIBLIOGRAPHY. 1968

_____ U.S. Office of Economic Opportunity. WE READ. 1966

(continued)

Jane Pool
Rev. 9/69

ELEMENTARY SCHOOL LIBRARY SCIENCE BOOK SELECTION QUESTIONNAIRE (4)

II. (continued)

_____ Winters, Anton. SCIENCE BOOKS FOR FUN: 1966

Please list other aids you have used recently:

Periodicals

_____ APPRAISAL; CHILDREN'S SCIENCE BOOKS
_____ BOOK WORLD
_____ BOOKLIST AND SUBSCRIPTION BOOKS BULLETIN
_____ BULLETIN OF THE CENTER FOR CHILDREN'S BOOKS
_____ CHILDHOOD EDUCATION
_____ ELEMENTARY ENGLISH
_____ ELEMENTARY SCIENCE
_____ GRADE TEACHER
_____ HORN BOOK MAGAZINE
_____ INSTRUCTOR
_____ NATURAL HISTORY
_____ N.Y. TIMES BOOK REVIEW
_____ SATURDAY REVIEW
_____ SCHOOL LIBRARY JOURNAL
_____ SCHOOL SCIENCE AND MATHEMATICS
_____ SCIENCE AND CHILDREN
_____ SCIENCE BOOKS (AAAS)
_____ SCIENCE NEWS
_____ SCIENTIFIC AMERICAN
_____ SKY AND TELESCOPE
_____ TOP OF THE NEWS
_____ YOUNG READERS' REVIEW

Please list other aids you have used this year:

Jane Pool
1/69

(continued)

ELEMENTARY SCHOOL LIBRARY SCIENCE BOOK SELECTION QUESTIONNAIRE (5)

III. SELECTION ACTIVITES

Please group the activities you have used in evaluating and selecting science books for the elementary school library in the order of their usefulness to you:

1. Place a double asterisk (**) by those most useful.
2. Place a single asterisk (*) by those you find useful.
3. Place a plus sign (+) by those you have used at least once during the last year.
4. Place a minus (-) by those you do not use.

_____ Examining Books on Exhibit

_____ Reviewing publishers' advance copies with subject committees of teachers and librarians

_____ Attending and participating in evaluation meetings with public librarians in the community

_____ Reading reviews of new books in library selection aids and selecting books to be ordered

_____ Meeting with other teachers and/or librarians in your building to choose books from several new titles evaluated by other teachers or librarians

_____ Checking textbook bibliographies against library holdings

_____ Checking publishers' catalogs for new books and against library holdings

_____ Examining publishers' exhibits

_____ Visiting local bookstores

_____ Checking a system-wide approved list

_____ Checking bibliographies prepared by subject consultants against library holdings

_____ Visiting local public libraries to examine books

Please list other activities in which you participate:

Jane Pool
1/69

Quality Checklist[a]

Author	Title	Publisher, Date	1	2	3	4	5	6	7[b]
Adler, Irving and Adler, Ruth	Air	Day, 1962							x
Adler, Irving and Adler, Ruth	The Calendar	Day, 1957	x				x		
Adler, Irving and Adler, Ruth	Coal	Day, 1967	x				x		
Adler, Irving	Dust	Day, 1958			x				
Adler, Irving and Adler, Ruth	Rivers	Day, 1961	x						
Alder, Irving	Seeing the Earth from Space	Day, 1959			x				
Adler, Irving	The Stars	Day, 1956			x				
Adler, Irving	Time in Your Life	Day, 1955			x				x
Adler, Irving	Weather in Your Life	Day, 1959	x						x
Allen, Hazel	Up From the Sea Came an Island	Scribner, 1962			x				
Ames, Gerald and Wyler, Rose	The Earth's Story	Creative Educational Society, 1962	x		x				x
Ames, Gerald and Wyler, Rose	First Days of the World	Harper, 1958			x				
Ames, Gerald and Wyler Rose	Planet Earth	Golden Press, 1963	x		x				
Archer, Sellers G.	Rain, Rivers and Reservoirs	Coward-McCann, 1963							x

[a]Titles included in the astronomy and earth sciences sections of the Children's Catalog, 1966 edition and supplements; Phase I of the Elementary School Library Collection, 1968 edition and supplement; and Books for Elementary School Libraries, An Initial Collection.

[b]Numbers are symbols for titles: 1, Gaver, 1968; 2, Gaver, 1968 supplement; 3, Children's Catalog, 1966; 4, 1967 supplement; 5, 1968 supplement; 6, 1969 supplement; 7, Hodges.

Author	Title	Publisher, Date	1	2	3	4	5	6	7
Asimov, Isaac	The Clock We Live On	Abelard, 1959			x				
Asimov, Isaac	Environments Out There	Abelard, 1967	x					x	
Asimov, Isaac.	The Kingdom of the Sun Rev. ed.	Abelard, 1963							x
Asimov, Isaac	Mars	Follett, 1967			x				
Asimov, Isaac	The Moon	Follett, 1966	x						
Asimov, Isaac	Stars	Follett, 1968		x					
Bartlett, Margaret Farrington	The Clean Brook	Crowell, 1960			x				
Bartlett, Margaret Farrington	Where the Brook Begins	Crowell, 1961		x					
Behn, Harry	All Kinds of Time	Harcourt, 1950			x				
Bell, Thelma Harrington and Bell, Corydon	The Riddle of Time	Viking, 1963	x						
Bell, Thelma Harrington	Snow	Viking, 1954	x		x				x
Bell, Thelma Harrington	Thunderstorm	Viking, 1960	x		x				x
Bendick, Jeanne	The First Book of Time	Watts, 1963	x		x				x
Bendick, Jeanne	Lightning	Rand, McNally, 1961			x				
Bendick, Jeanne	The Shape of the Earth	Rand, McNally, 1965	x		x				x
Bendick, Jeanne	The Wind	Rand, McNally, 1964	x		x				
Bergamini, David and the Editors of Life	The Universe	Time, Inc., 1962						x	
Bergaust, Erik and Foss, William O.	Oceanographers in Action	Putnam, 1968	x					x	
Black, Irma Simonton	Busy Water	Holiday, 1958			x				
Bloch, Marie Halun	Mountains on the Move	Coward, 1960			x				
Bradley, Duane	Time for You	Lippincott, 1960	x		x				
Branley, Franklyn M.	Air is All Around You	Crowell, 1962							x
Branley, Franklyn M.	The Big Dipper	Crowell, 1962			x				x
Branley, Franklyn M.	A Book of Mars for You	Crowell, 1968	x				x		
Branley, Franklyn M.	A Book of Planets for You	Crowell, 1961			x				
Branley, Franklyn M.	A Book of Stars for You	Crowell, 1961			x				

Author	Title	Publisher, Date	1	2	3	4	5	6	7
Branley, Franklyn M.	A Book of the Milky Way Galaxy for You	Crowell, 1965				x			
Branley, Franklyn M.	The Earth: Planet Number Three	Crowell, 1966	x						x
Branley, Franklyn M.	Experiments in Sky Watching	Crowell, 1959							x
Branley, Franklyn M.	Flash, Crash, Rumble, and Roll	Crowell, 1964				x			x
Branley, Franklyn M.	Mars: Planet Number Four	Crowell, 1962							x
Branley, Franklyn M.	The Moon: Earth's Natural Satellite	Crowell, 1960							x
Branley, Franklyn M.	The Moon Seems to Change	Crowell, 1960			x				
Branley, Franklyn M.	The Nine Planets	Crowell, 1958				x			x
Branley, Franklyn M.	North, South, East and West	Crowell, 1966				x			
Branley, Franklyn M.	Rain and Hail	Crowell, 1963				x			
Branley, Franklyn M.	Snow is Falling	Crowell, 1963			x				x
Branley, Franklyn M.	The Sun: Our Nearest Star	Crowell, 1961			x				x
Branley, Franklyn M.	What Makes Day and Night	Crowell, 1961			x				
Branley, Franklyn M.	What the Moon is Like	Crowell, 1963			x				
Brenna, Virgilio	The Moon	Golden Press, 1963	x		x				
Brindze, Ruth	All About Undersea Exploration	Random House, 1960			x				
Brindze, Ruth	The Gulf Stream	Vanguard, 1945	x		x				x
Brindze, Ruth	The Rise and Fall of the Seas	Harcourt, 1964			x				x
Brindze, Ruth	The Story of Gold	Vanguard, 1955			x				
Brindze, Ruth	The Story of Our Calendar	Vanguard, 1949			x				x
Brindze, Ruth	The Story of the Trade Winds	Vanguard, 1960			x				
Brown, Lloyd A.	Map Making: The Art that Became a Science	Little, 1960				x			
Buehr, Walter	Volcano!	Morrow, 1962			x				
Buehr, Walter	World Beneath the Waves	Norton, 1964			x				
Burt, Olive	The First Book of Salt	Watts, 1965			x				

Author	Title	Publisher, Date	1	2	3	4	5	6	7
Burton, Virginia Lee	Life Story	Houghton, 1962			x				
Carlisle, Norman and Carlisle, Madelyn	The True Book of Rivers	Childrens Press, 1967	x						
Carona, Philip B.	Water	Follett, 1967			x				
Carson, Rachel	The Sea Around Us Rev. ed.	Oxford, 1961							x
Chamberlain, J. M. and Nicholson, Thomas D.	Planets, Stars and Space	Creative Educational Society, 1962							x
Chapman, Sydney	IGY: Year of Discovery	University of Michigan Press, 1959	x						
Clarke, Arthur C.	The Challenge of the Sea	Holt, 1960	x						x
Clemons, Elizabeth	Waves, Tides, and Currents	Knopf, 1967	x			x			
Coggins, Jack	Hydrospace; Frontier Beneath the Sea	Dodd, 1966							x
Collins, Henry Hill	The Wonders of Geology	Putnam, 1962			x				
Cook, J. Gordon	Exploring Under the Sea	Schuman, 1964			x				
Coombs, Charles	Deep-Sea World: The Story of Oceanography	Morrow, 1966				x			x
Cormack, M. B.	The First Book of Stones	Watts, 1950			x				x
Craig, M. Jean	Spring Is Like the Morning	Putnam, 1965							x
Crosby, Phoebe	Junior Science Book of Rock Collecting	Garrard, 1962			x				
Crosby, Phoebe	Junior Science Book of Stars	Garrard, 1960			x				
Darby, Gene	What Is a Season	Benefic Press, 1959			x				
Darling, Lois and Darling, Louis	Coral Reefs	World, 1963	x		x				
Darling, Louis	Mountains	Morrow, 1962			x				
Dietz, David	All About the Universe	Random House, 1965			x				
Engel, Leonard	The Sea	Silver Burdett, 1964						x	x
Epstein, Samuel and Epstein, Beryl	All About the Desert	Random House, 1967			x				
Epstein, Samuel and Epstein, Beryl	The First Book of Maps and Globes	Watts, 1959	x						

Author	Title	Publisher, Date	1	2	3	4	5	6	7
Epstein, Samuel and Epstein, Beryl	The First Book of the Ocean	Watts, 1961			x				x
Fenton, Carroll Lane and Fenton, Mildred A.	Land We Live On	Doubleday, 1966							x
Fenton, Carroll Lane and Fenton, Mildred A.	Our Changing Weather	Doubleday, 1954			x				
Fenton, Carroll Lane and Fenton, Mildred A.	Riches from the Earth	Day, 1953			x				x
Fenton, Carroll Lane and Fenton, Mildred A.	Rocks and Their Stories	Doubleday, 1951							x
Fenton, Carroll Lane and Fenton, Mildred A.	Worlds in the Sky. Rev. ed.	Day, 1963	x		x				x
Feravolo, Rocco	Junior Science Book of Water Experiments	Garrard, 1965			x				
Fisher, James	The Wonderful World	Hanover House, 1954			x				
Fisher, James	The Wonderful World of the Air	Garden City, 1958			x				
Fisher, James	The Wonderful World of the Sea	Doubleday, 1957			x				
Forsee, Alyesa	Beneath Land and Sea	MacRae Smith, 1962	x						
Fox, Charles Phillip	When Autumn Comes	Reilly and Lee, 1966							x
Fox, Charles Phillip	When Spring Comes	Reilly and Lee, 1964							x
Fox, Charles Phillip	When Summer Comes	Reilly and Lee, 1966							x
Fox, Charles Phillip	When Winter Comes	Reilly and Lee, 1962							x
Freeman, Mae and Freeman, Ira	Fun with Astronomy	Random House, 1953			x				x
Freeman, Mae and Freeman, Ira	The Sun, the Moon and the Stars	Random House, 1959			x				
Gaer, Joseph	Everybody's Weather. Rev. ed.	Lippincott, 1957			x				
Gallant, Roy A.	Exploring the Moon. Rev. ed.	Doubleday, 1966				x			
Gallant, Roy A.	Exploring the Planets	Doubleday, 1955							x
Gallant, Roy A.	Exploring the Planets. Rev. ed.	Doubleday, 1967	x				x		
Gallant, Roy A.	Exploring the Sun	Garden City, 1958			x				

Quality Checklist (continued)

Author	Title	Publisher, Date	1	2	3	4	5	6	7
Gallant, Roy A.	Exploring the Universe	Doubleday, 1956			x				
Gallant, Roy A.	Exploring the Weather	Garden City, 1957	x		x				x
Galt, Thomas Franklin	Volcano	Scribner, 1946			x				
Gans, Roma	Icebergs	Crowell, 1964			x				x
Gans, Roma	The Wonder of Stones	Crowell, 1963			x				
Gleick, Beth Y.	Time Is When	Rand, 1960	x						
Goetz, Delia	Deserts	Morrow, 1956	x		x				x
Goetz, Delia	Grasslands	Morrow, 1959			x				x
Goetz, Delia	Islands of the Ocean	Morrow, 1964	x		x				x
Goetz, Delia	Mountains	Morrow, 1962	x		x				x
Goetz, Delia	Swamps	Morrow, 1961			x				
Goetz, Delia	Tropical Rain Forests	Morrow, 1957	x		x				x
Goldin, Augusta	The Bottom of the Sea	Crowell, 1967					x		x
Goldin, Augusta	Salt	Crowell, 1966					x		
Goudey, Alice E.	The Good Rain	Aladdin, 1950			x				
Greenhood, David	Watch the Tides	Holiday, 1961							x
Gringhuis, Dirk	Stars on the Ceiling	Meredith, 1967							x
Haber, Heinz	Stars, Men and Atoms	Golden, 1962	x		x				
Halacy, D. S.	The Water Crisis	Dutton, 1966		x					x
Hamilton, Elizabeth	The First Book of Caves	Watts, 1956			x				x
Hart, Jane	Let's Think About Time	Hart, 1965	x						
Hathway, James A.	The Story of Maps and Map-Making	Golden Press, 1960	x			x			
Helfman, Elizabeth S.	Rivers and Watersheds	McKay, 1965							x
Hirsch, S. Carl	On Course: Navigating in Sea, Air and Space	Viking, 1967					x		
Hitte, Kathryn	Hurricanes, Tornadoes, and Blizzards	Random House, 1960			x				
Hoke, John	The First Book of the Jungle	Watts, 1964							x
Holsaert, Eunice	A Book to Begin on Ocean Wonders	Holt, 1965			x				
Huntington, Harriet E.	Let's Go To the Desert	Doubleday, 1949	x						
Huntington, Harriet E.	The Yosemite Story	Doubleday, 1967							x

Author	Title	Publisher, Date	1	2	3	4	5	6	7
Hyde, Margaret O.	Exploring Earth and Space 4th ed.	McGraw-Hill, 1967							x
Irving, Robert (pseud. of Irving Adler)	Hurricans and Twisters	Knopf, 1955	x		x				x
Irving, Robert (pseud. of Irving Adler)	Volcanoes and Earthquakes	Knopf, 1962			x				x
Irwin, Keith Gordon	The 365 Days	Crowell, 1963	x						
Jensen, David E.	My Hobby is Collecting Rocks and Minerals	Childrens Press, 1958			x				
Johnson, Thomas Perry	When Nature Runs Wild	Creative Educational Society, 1968		x					
Joseph, Joseph Maron and Lippincott, Sara Lee	Point to the Stars	Whittlesey, 1962			x				
Joseph, Joseph Maron and Lippincott, Sara Lee	Point to the Stars. Rev. ed.	Whittlesey, 1967	x						
Knight, David C.	Comets	Watts, 1968						x	
Knight, David C.	The First Book of Air	Watts, 1961	x		x				x
Knight, David C.	The First Book of Deserts	Watts, 1964	x		x				x
Knight, David C.	The First Book of Mars	Watts, 1966				x			
Knight, David C.	Let's Find Out About Earth	Watts, 1968		x				x	
Knight, David C.	Let's Find Out About Weather	Watts, 1967	x				x		
Kraske, Robert	Crystals of Life; The Story of Salt	Doubleday, 1968		x					
Laird, Charles and Laird, Ruth	Weathercasting	Prentice-Hall, 1955	x						x
Lane, Ferdinand C.	All About the Sea	Random House, 1953			x				x
Larrick, Nancy	Rain, Hall, Sleet and Snow	Garrard, 1961			x				
Lauber, Patricia	All About the Ice Age	Random House, 1959	x		x				
Lauber, Patricia	All About the Planet Earth	Random House, 1962	x		x				x
Lauber, Patricia	All About the Planets	Random House, 1960			x				x
Lauber, Patricia	Junior Science Book of Icebergs and Glaciers	Garrard, 1961			x				x
Lauber, Patricia	Junior Science Book of Volcanoes	Garrard, 1965	x		x				x

Author	Title	Publisher, Date	1	2	3	4	5	6	7
Lehr, Paul	Storms	Golden Press, 1966				x			
Lehr, Paul	Weather	Golden Press, 1965	x						
Leopold, Aldo Starker	The Desert	Time, Inc., 1961						x	
Ley, Willy and Von Braun, Werner	The Exploration of Mars	Viking, 1956			x				
Life (Periodical)	The World We Live In	Golden Press, 1956							x
Loomis, Frederick Brewster	Field Book of Common Rocks and Minerals. Rev. ed.	Putnam, 1948	x		x				x
Luhrmann, Winifred B.	The First Book of Gold	Watts, 1968		x					
McFall, Christie	Maps Mean Adventure	Dodd, 1961			x				
McFall, Christie	Wonders of Sand	Dodd, 1966	x						
Marcus, Rebecca B.	First Book of Glaciers	Watts, 1962			x				
Marcus, Rebeeca B.	First Book of Volcanoes and Earthquakes	Watts, 1963			x				
Marsh, Susan	All About Maps and Mapmaking	Random House, 1963	x		x				
Marshack, Alexander	The World in Space	Nelson, 1958			x				
Matthews, William III	The Story of the Earth	Harvey House, 1968						x	
May, Julian	They Lived in the Ice Age	Holiday, 1967	x				x		
May, Julian	Weather	Follett, 1966	x				x		
Mayall, Newton, Mayall, Margaret and Wyckoff, Jerome	The Sky Observer's Guide	Golden Press, 1959	x		x				
Meyer, Jerome Sydney	Water at Work	World Publishing, 1963							x
Milne, Lorus J. and Milne, Margery	The Mountains	Time, Inc., 1962	x		x				
Moore, Patrick	The Picture Hitory of Astronomy. 2d. ed. rev.	Grossett, 1964			x				
Moore, Patrick	Telescopes and Observatories	Day, 1962			x				
Munch, Theodore W.	What is a Solar System	Benefic Press, 1959			x				
Naden, Corinne J.	The First Book of Rivers	Watts, 1967	x						x
Page, Lou Williams	Dipper Full of Stars. Rev. and enl. ed.	Follett, 1959			x				
Pearl, Richard M.	Wonders of Rocks and Minerals	Dodd, 1961	x		x				
Peterson, Ottis	Junior Science Book of Water	Garrard, 1966				x			

Author	Title	Publisher, Date	1	2	3	4	5	6	7
Pine, Tillie S.	Rocks and How We Use Them	McGraw-Hill, 1967							x
Podendorf, Illa	The True Book of Rocks and Minerals	Childrens Press, 1958			x				x
Podendorf, Illa	The True Book of Weather Experiments	Childrens Press, 1961							x
Polgreen, John and Polgreen, Cathleen	The Earth in Space	Random House, 1963			x				
Polgreen, John and Polgreen, Cathleen	The Stars Tonight	Harper, 1967	x				x		
Polgreen, John and Polgreen, Cathleen	Sunlight and Shadows	Doubleday, 1967	x				x		
Pond, Alonzo	Deserts: Silent Lands of the World	Norton, 1965	x		x				x
Poole, Lynn and Poole, Gray	Danger! Icebergs Ahead!	Random House, 1961			x				x
Poole, Lynn and Poole, Gray	Deep in Caves and Caverns	Dodd, 1962	x						x
Poole, Lynn and Poole, Gray	Volcanoes in Action: Science and Legend	McGraw-Hill, 1962			x				
Pough, Frederick	All About Volcanoes and Earthquakes	Random House, 1953	x		x				
Pough, Frederick	A Field Guide to Rocks and Minerals. 3d ed.	Houghton, 1960			x				
Ravielli, Anthony	The World Is Round	Viking, 1963	x		x				x
Reed, W. Maxwell	The Earth for Sam. Rev. ed.	Harcourt, 1960	x						
Reed, W. Maxwell	Patterns in the Sky	Morrow, 1951	x		x				x
Rey, H. A.	Find the Constellations	Houghton, 1954			x				x
Rey, H. A.	Find the Constellations. Rev. ed.	Houghton, 1966	x						
Rey, H. A.	The Stars	Houghton, 1963			x				
Rey, H. A.	The Stars. Rev. ed.	Houghton, 1967							x
Rice, Stanley	Tell Time	Harcourt, 1963	x						
Richards, Leverett	Ice Age Coming	Day, 1960			x				
Riedman, Sarah R.	Water for People. Rev. ed.	Abelard, 1960	x		x				x
Rivers of the World by J. Popescu and others		Walck, 1962	x						

Quality Checklist (continued)

Author	Title	Publisher, Date	1	2	3	4	5	6	7
Ross, George Maxim	The River	Dutton, 1967	x						
Ruchlis, Hy	Your Changing Earth	Harvey House, 1963			x				
Sagan, Carl and Leonard, Jonathan Norton	Planets	Time, Inc., 1966	x						x
Schloat, G. Warren	Andy's Wonderful Telescope	Scribner, 1958			x				x
Schloat, G. Warren	Magic of Water	Scribner, 1955			x				
Schneider, Herman	Everyday Weather and How It Works. Rev. ed.	McGraw-Hill, 1961	x		x				x
Schneider, Herman and Schneider, Nina	You Among the Stars	Scott, 1951			x				
Schneider, Leo	Space in Your Future	Harcourt, 1961			x				
Selsam, Millicent E.	Birth of an Island	Harper, 1959	x		x				x
Sevrey, O. Iren	The First Book of the Earth	Watts, 1958			x				
Shannon, Terry	About Caves	Melmont, 1960			x				
Shannon, Terry and Payzant, Charles	Project Sealab...	Golden Gate, 1966							x
Shannon, Terry	Saucer in the Sea...	Golden Gate, 1965			x				
Shuttlesworth, Dorothy	The Doubleday First Guide to Rocks	Doubleday, 1963			x				
Shuttlesworth, Dorothy	Story of Books. Rev. ed.	Garden City, 1966			x				x
Smith, Frances C.	First Book of Mountains	Watts, 1964			x				
Smith, Frances C.	First Book of Water	Watts, 1959			x				
Sootin, Harry	The Long Search	Norton, 1967							x
Sootin, Harry and Sootin, Laura	The Young Experimenter's Workbook: Treasures of the Earth	Norton, 1965			x				x
Spar, Jerome	The Way of the Weather	Creative Educational Society, 1967	x						
Sperry, Armstrong	All About the Jungle	Random House, 1959	x						x
Spilhaus, Athelstan	The Ocean Laboratory	Creative Educational Society, 1967	x						x
Spilhaus, Athelstan	Satellite of the Sun	Viking, 1958			x				
Sterling, Dorothy	The Story of Caves	Doubleday, 1956			x				x
Syrocki, B. John	What Is a Rock?	Benefic Press, 1959			x				
Syrocki, B. John	What Is Weather?	Benefic Press, 1960			x				

Author	Title	Publisher, Date	1	2	3	4	5	6	7
Tangborn, Wendell V.	Glaciers	Crowell, 1965				x			
Tannenbaum, Beulah and Stillman, Myra	Understanding Time: The Science of Clocks and Calendars	McGraw-Hill, 1958							x
Tannehill, Ivan Ray	All About the Weather	Random House, 1953			x				x
Tannehill, Ivan Ray	The Hurrican Hunters	Dodd, 1955			x				
Telfer, Dorothy	Exploring the World of Oceanography	Childrens Press, 1968						x	
Thompson, Phillip Duncan	Weather	Time, Inc., 1965							x
White, Anne Terry	All About Great Rivers of the World	Random House, 1957			x				x
White, Anne Terry	All About Mountains and Mountaineering	Random House, 1962			x				
White, Anne Terry	All About Our Changing Rocks	Random House, 1955			x				
White, Anne Terry	All About the Stars	Random House, 1954			x				
Wyckoff, Jerome	The Story of Geology	Golden Press, 1960	x		x				
Wyler, Rose	The First Book of Weather	Watts, 1956			x				
Wyler, Rose and Ames, Gerald	The New Golden Book of Astronomy. Rev. ed.	Golden Press, 1965			x				
Wyler, Rose and Ames, Gerald	The Story of the Ice Age	Harper, 1956			x				
Zarchy, Harry	Wheel of Time	Crowell, 1957			x				x
Zim, Herbert S.	Comets	Morrow, 1957	x		x				x
Zim, Herbert S.	Diamonds	Morrow, 1959			x				
Zim, Herbert S.	Lightning and Thunder	Morrow, 1952	x		x				x
Zim, Herbert S. and Cooper, Elizabeth K.	Minerals	Harcourt, 1943	x						
Zim, Herbert S. and Shaffer, Paul R.	Rocks and Minerals	Golden Press, 1957	x		x				x
Zim, Herbert S.	Shooting Stars	Morrow, 1958	x		x				x
Zim, Herbert S. and Baker, Robert G.	Stars. Rev. ed.	Golden Press, 1956	x		x				x
Zim, Herbert S.	The Sun	Morrow, 1953	x		x				x
Zim, Herbert S.	The Universe	Morrow, 1961	x		x				x
Zim, Herbert S.	Waves	Morrow, 1967	x				x		
Zim, Herbert S.	What's Inside the Earth	Morrow, 1953			x				

APPENDIX C

SCHOOL INFORMATION: ENROLLMENTS, FOURTH GRADE SCIENCE SECTIONS AND SCIENCE TEACHERS

Basic School Information

	1	2	3	4	5	6	7	8	9	10	11	12[a]
Opening Date of School	1956	1947	1960	1953	ca. 1900	1956	1960	1950	1959	1940	1953	1925
Number of Grades	1-6	1-6	1-6	1-7	1-6	1-7	K-6	K-6	K-6	1-6	K-6	K-6
Number of Students	1153	1200	580	1022	929	750	1713	833	1283	865	1040	1100
Fourth Grade Sections	7	7	4	5	6	4	8	4	7	4	5	6
Number of Fourth Grade Science Teachers	5	4	1	1	2	2	8	4	7	4	5	6
Median Semester Hours of College Science	8	9	48	3	35	14	9	9	7.5	16.5	12	9

[a]Numbers designate schools: 1-6, District I; 7-12, District II.